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ABSTRACT

"Center Stage" is a monthly publication of Broome Community College (Binghamton, New York), sponsored by the Teaching Resources Center as a platform for the discussion of ideas about teaching and learning by Broome College faculty. The second volume (nine issues) of "Center Stage" includes the following articles: "Towards a Learning Community: Using and Infusing a Campus-Wide Theme," by Bryan K. Blanchard; "Characteristics of Adult Learners," by Annamary Allen; "Technology, Culture, and the Modern Crisis," by Lorenz J. Firsching; "Writing as a Sustainable Skill in the Technologies," by Rachel Hinton; "Pronouns and Sexism," by Richard Stoner; "Calculators: Giving All a Fair Disadvantage," by Frank Plunkett; "The Department of Athletics and the Student Athlete Within the College Community," by Dan Minch; "How to Divide a Candy Bar or What's New in Mathematics," by Mort Goldberg; "In a Changing World, College and University Teaching Must Be Appreciated, Recognized, and Rewarded," by A. Jerome Jewler; "Critical Thinking? What Is It Anyway?" by Rick Firenze; "Uncertainty Analysis," by Ralph McGrew; "The Why of Biology Field Trips or Experiential Learning," by Dave Sterling; "Learning Outside the Classroom: Student Club Membership," by Barbara Nilsen; "The Everglades Classroom," by Dave Walsh; "Nursing Education Off-Campus," by Carolyn Pierce; and "Mathematics and the Environment," by Maruja Lander. Six of the issues include one to three essays by faculty members entitled, "Why I Teach." (JSP)

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CENTER STAGE

A Platform for the Discussion of Teaching/Learning Ideas

Volume 2
Numbers 1-9
September 1991-May1992

Edited by
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Broome Community College
Binghampton, New York 13902

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Center Stage

A Platform for the Discussion of Teaching/Learning Ideas
Broome Community College -- Binghamton, New York 13902

Volume 2 Number 1 *September 15, 1991*

Not By Bread Alone

Rebecca Bennett, English Department

As I sit here in the Chautauqua library on a perfect July day -- a refreshing breeze and the clear tones of Dvorak's 6th Symphony coming through the open window--I'm tempted to make this article on why I went into teaching a very short one. Not only because I'm enjoying myself far too much to want to write about a subject that seems distant and unimportant, but also because right now I could sum up one of the main reasons I enjoy teaching in four simple words: I get summers off! But this would be a bit misleading and inaccurate. I would be dishonest if I didn't admit that one thing I love about teaching is the freedom it gives me to pursue other interests: spending time with my family, traveling, gardening, taking photographs, reading in my hammock, etc. But ... I also must admit that when I was finishing up graduate school and applying for jobs, I didn't think about the time off as a reason to pursue a teaching career. Luckily I had recently had an experience -- an epiphany, if you will --

> I'm tempted to make this article on why I went into teaching a very short one.

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Towards a Learning Community : Using and Infusing a Campus-Wide Theme

Bryan K. Blanchard, VPAA

With the Fall 1991 semester, BCC initiates an exciting educational experiment as it seeks to establish a new sort of learning community on campus. After several semesters of experience with innovative approaches, the college is now moving to implement a strategy which, if successful, will both unify our diverse programs into a more common academic culture and deliver an important message on behalf of general education. The experiment is based on the adoption of a college-wide theme for the academic year - Science and Technology for a Sustainable Society - and the aim is to create a federated learning community which will embrace in new ways the many different programs we offer. What is intended, however, is not just a new addition to what we do now. It is instead an extension of our infusion approach to general education and a new way of delivering community college instruction.

Too often in our collegiate institutions, the good intentions of educators end up being translated into new courses which are then accreted to the curriculum. If there were room, these new courses might ultimately prove beneficial to students. Unfortunately, there are limits to what can reasonably be imposed on undergraduates. Since this is so, there must also be limits on the number of new courses which can be added to existing programs, especially in view of the fact that program faculty themselves are at no loss for ideas on additions to the required course list. Thus, there is much good sense to infusing new ideas into the existing curriculum rather than just grafting new things on to it. Either that or we should all follow the lead of the one university so far which now offers an extra year free so its graduates can study all the general education courses which were crowded out of its undergraduate degree sequences.

> ... there is much good sense to infusing new ideas into the existing curriculum rather than just grafting new things on to it.

Richard Lamm, the former Governor of Colorado, tells an amusing and insightful anecdote about a parallel

(Continued on page 4)

Bennett (from page 1)

that had made me understand my goals more clearly.

As a teaching assistant, one of my duties that year was to attend undergraduate classes taught by the professors on my orals committee. One unremarkable spring day I was sitting in on a freshman literature course taught by B.J. Leggatt -- a tall, imposing figure with dark hair, a large bushy mustache and a commanding voice. Even though I'd known him for over a year, I still felt a bit intimidated -- by his physical presence as well as his intelligence and scholarly reputation. On this particular day the class was studying poetry and the professor was reading a poem out loud. I don't remember author or title, but I vaguely recall that is was a twentieth-century British poet. At any rate, those details are less significant to me than what happened next. I had been looking down at my text, following along with the verse, when I noticed a catch in Dr. Leggatt's normally strong, unflinching voice. When I looked up, I saw that there were tears in his eyes and that he was deeply moved -- for whatever reason -- by the passage he had been reciting. Most of the undergraduates were clearly embarrassed by this show of emotion and there were various giggles and whispers around the room. The professor didn't apologize for his reaction, however, nor did he diminish his feelings by making a joke about what had just happened. He composed himself, finished reading the poem, and -- without realizing it -- changed my life.

> ... I saw that there were tears in his eyes and that he was deeply moved -- for whatever reason -- by the passage he had been reciting.

I couldn't then (and still can't adequately!) explain how I know that day that teaching is what I wanted to do with my life. Professor Leggatt's spontaneous, unashamed reaction had somehow made me realize that being able to take a risk in front of a relatively large group of people; that helping students realize the importance of responding emotionally to a subject as well as understanding it intellectually; that being able to identify feelings, figure out what they mean, why we have them and integrate them into our lives in a constructive, meaningful way -- that all of these relatively unquantifiable aspects of life were and are very important to me. As I continued to think about this experience, I also realized that there are very few professions where such freedom is possible. I have sensed over the years -- from student reactions in class as well as on formal evaluations -- that being able to integrate emotion into the skills I teach is a valuable (and valued!) ability.

So, Professor Leggatt, if this document should fall into your hands, thank you for being an example to me. Thank you for being a careful scholar and a caring, feeling human being. Trying to balance intellect and emotion in my teaching is a constant challenge -- one I'm not at all sorry I took on.

Why I Teach

Jean Krichbaum, Mathematics Department

It's the day before I start summer session. I'm thinking ... "I don't know, maybe I should have taken the summer off. It doesn't seem like it's been three weeks since I last taught. It seems more like two days." "Will they understand my presentations? Will I really encourage them to participate? Will I improve their opinion of Mathematics?" I then anticipate the familiar comments of my students. "Just give me the steps and I'll do the problem." "Don't bother me with why you do the problem this way, just teach me how to do it." I think to myself, "With all these uncertainties, why teach?"

> I teach because I value Mathematics.

Why? I teach because I value Mathematics. It is an excellent tool for developing critical thinking skills. Through my instruction I want my students to begin to see the value in Mathematics as a tool to develop their reasoning skills. They should learn that the thought processes involved in problem solving are as important (if not more so) than arriving at the correct answer.

Further I seek to change the "I hate Math and I never could do Math" attitude in some of my students. This has met with some success. A thirteen-year old in seventh grade my first year of teaching refused at first to do any in-class work. He would not even let me see his paper. With patience and stubbornness on my part, he began to work and let me see the easy problems that he knew he had right. I praised him as much as possible for every correct step. Gradually he began to ask questions when I walked over to his seat. He found that he was able to be successful in mastering most of the concepts in seventh grade Math. That year he grew from a fifth grade to a seventh grade Mathematics level. He began to believe in his ability to work at his Mathematics skills.

Many of the students in the lower level Mathematics courses are filled with apprehension about their ability. Many women in particular absolutely dread the course. I demonstrate to them that Mathematics is a subject that can be enjoyed. They are encouraged to take as many Mathematics courses as they can to make their education more well-rounded and to get a competitive edge over other students.

On a personal level I teach to experience change.

(Continued on page 6)

Welcome to the Teaching Resources Center

Alice McNeely, Coorinator TRC

When I lived in the Johnson City area, I frequented the neighborhood public library, appropriately called "Your Home Library." I loved that old house, the worn leather chairs and bright, sun-lit rooms lined with books. It felt comfortable. It felt like home. Although the TRC lacks the aged patina of Your Home Library, I hope it develops some of that atmosphere. The Teaching Center is a place created by and for faculty, a place for you to feel at home. The ultimate purpose of the Teaching Resource Center is to enhance the learning experiences of students. The TRC will foster this by providing opportunities for self-initiated learning to all faculty who seek to enhance their teaching effectiveness. The shape it takes depends on the needs and interests of all of us.

> The Teaching Center is a place created by and for faculty, ... The shape it takes depends on the needs and interests of all of us.

The Center was established in January and officially opened its doors at the beginning of this semester. If you didn't make it to the Open House, please come visit. The Center is open Mondays 8am-7pm and 8am-3:30pm Tuesday-Friday. Other times may be arranged by appointment. Check FOCUS every week for upcoming events, you don't need an event to use the center. It's a quiet place to relax, do paper work or meet with other faculty.

Here is the nitty gritty you need to know about the TRC:

WHO WE SERVE: All faculty (tenure track and adjuncts) and teaching staff. Other staff members are welcome to participate if an activity interests them and space allows.

STAFFING: The TRC is staffed by a faculty member on full release time serving as coordinator to handle the day to day operations. That position has been designed to rotate every 2-3 years. In addition to the coordinator there are several work-study students who help with the secretarial and receptionist duties of the center. If the coordinator cannot be present, a work-study student will keep the center open during our hours of operation. If you would like the coordinator's assistance, it is suggested that you make an appointment to ensure her availability.

POLICY DECISIONS: A TRC advisory board, which is made up of faculty representatives from the 4 divisions, LAC, adjunct faculty, non-classroom faculty, College Council and the Professional Development Coordinator, oversees the TRC Coordinator and helps determine the directions taken by the TRC.

USE OF ROOMS: All TRC events, unless otherwise specified, will be held at the Center. Functions for 14 people or less will be held in the conference room portion of the center (L-213). This room is available for your use if a TRC function is not scheduled. If you would like to use the room for a meeting related to professional development or pedagogy you should call the TRC to schedule it. The room divider can be closed for privacy. You will find the L-213 entrance by the faculty lounge most convenient for functions held in the conference area. The adjoining room, L-211 is the "drop in" area and contains the books, videos, periodicals, bulletin board, computers, coffee and eventually a sofa.

REFRESHMENTS: The Faculty Association is providing daily coffee and tea. The FSA is contributing funds for refreshments at TRC functions. This means that cookies, muffins, cheese & crackers, etc. can be provided at TRC sponsored events.

CENTER STAGE: This monthly publication is sponsored by the TRC. As a faculty publication, its existence is dependent upon faculty writing articles for publication. Paul O'Heron has been the chief Editor and Publisher. Ann Sova will edit the October Issue. Guest Editors are gratefully accepted; desktop publishing is not required. The Writing Center Coordinator would be happy to talk with faculty members about their drafts.

> We are matching new faculty members with veteran BCC faculty members.

MENTORS: A new faculty mentoring project was initiated this fall. We are matching new faculty members with veteran BCC faculty members. The mentor serves as colleague and advisor to the new faculty member. We hope this will assuage isolation and help our new colleagues assimilate into BCC campus life. At last count we had 37 new adjunct faculty members on campus this semester. If you are willing to mentor, please contact the teaching center.

RESOURCES: This is the area of the TRC that we hope will grow. Our current holdings include -

1. **BULLETIN BOARD** A large bulletin board is available for you to post conferences and articles that would be of interest to faculty. A list of conferences generated by the VPAA's office is updated weekly and posted on the bulletin board.

2. **BOOKS** Currently we house the Special Collection for the Institute for Community College Research.

(Continued on page 7)

Blanchard (from page 1)

situation.(1) He says that a few years ago, Tennessee suffered an intense period of political scandal and corruption. Reformers in the state senate decided that what was needed was a tough, no-nonsense ethics code, but other senators, perhaps intent on protecting their own interests, mounted a campaign to preserve the status quo. The opposition's strategy, amazing as it may sound, involved an add-on to Tennessee law. They proposed to enact the Ten Commandments and the Golden Rule and by this device avoid establishing a new ethics code. But the reformers were sensitive to the drawbacks of mere add-ons and quick on their feet besides. Through an amendment, they incorporated the Ten Commandments and the Golden Rule into their own proposal and then dared the opposition to vote against millennia of Judeo-Christian dogma. By this maneuver, they saved their bill; and today the various articles of Tennessee's code of ethics detail procedural rules on conduct and then jump to an article which reads in its entirety, "Thou shalt have no other gods before Me". Governor Lamm might have added that infusion is only as good a strategy as the match it provides between the new and the old.

> But if there are good reasons for ... a common theme on campus, none is potentially more valuable than the possibility of creating a learning community.

But if there are good reasons for applying an infusion strategy to the existing curriculum and striking a common theme on campus, none is potentially more valuable than the possibility of creating a learning community. This is a concept and a goal which has been mentioned with increasing frequency in the literature of higher education. For example, Ron Hamberg of the Seattle Community Colleges, writing in "Leadership Abstracts", published by the League for Innovation in the Community College, has written that,

> There is general agreement that undergraduate education is in crisis. Its fundamental ills include the lack of coherence in course work, the lack of connectedness among the disciplines, and the lack of intellectual interaction between faculty and students.
>
> In contrast, imagine a learning environment where students and instructors eagerly work together toward understanding concepts, solving practical and intellectual problems, debating philosophical positions, and trying to synthesize aspects of different disciplines. Imagine students and faculty reluctant to quit their activity at the appointed hour, and imagine that ninety percent of the students complete their classes and receive credit. This almost sounds too good to be true, but it is true for learning communities which restructure the curriculum in order to achieve linking and coordination of content and learners... (2)

A learning community, Hamberg goes on to say, is a pedagogical approach which places emphasis on the student and the instructor as members of a community engaged in a common purpose. Typically, courses are either team-taught or joined in some way so as to underscore the linkages between disciplines. Some colleges have used Western Civilization of other history courses as the vehicle for drawing together a number of disciplines, for example literature, art, and music. The point is either to focus on connections or to analyze experience from a number of different perspectives, depending on the type of outcomes which the instructors seek to promote. Either way, the possibilities for student-student and faculty-student collaboration are enhanced. In his description of the pedagogy of learning communities, Hamberg identifies a number of characteristics common to most efforts:

> A learning community ... is a pedagogical approach which places emphasis on the student and the instructor as members of a community engaged in a common purpose.

1. There is an integration of the skills which students should learn with the content of the curriculum.

2. Interdisciplinary study is intended to counter the fragmented view which too often results from immersion in separate disciplines.

3. Collaborative learning methods are frequently used.

4. Class schedules and campus space are often used in new ways so that teachers and students interact more frequently.(3)

For community colleges, learning communities offer significant opportunities because they hold the possibility of affecting the nature and level of interaction on campus. This is important because a main purpose of community colleges is to be an open door to higher education. As such, community colleges often attract the very sorts of students who are most likely to drop out. Indeed, research now shows that residential colleges which are not designed for this purpose are actually better at serving so-called high-risk students because of the very nature of their campus environments. In short, residential living improves retention. Some time ago, this observation prompted Alexander Astin to write:

(Continued on page 6)

Characteristics of Adult Learners

Annamary Allen, Business Department

Malcolm Knowles, a well known researcher in adult education, suggests that adults learn best when the instructors practice andragogy, the art and science of helping adults learn.

Characteristics of adult learners include:

- A group of adults (say 50 years old) are more diverse than a group of high school graduates (say 18 years old). Age and experience create more diverse, unique individuals.
- Adults become self directed.
- Adults place a high value on personal experiences.
- Adults need to apply the information learned immediately.
- Memory changes with age and thus affects learning. As one ages, short-term memory capacity decreases.
- All five senses decline with age, especially sight and hearing.
- With age it seems harder to organize complex material.
- Previously learned material starts to interfere with new material to be learned. It is harder to relearn or correct than to learn for the first time.
- Adults have a slower reaction time.
- Adults have greater readiness to learn.
- Adults are internally motivated.

Adults have many roles that take priority over learner/student roles such as parent, employee, employer, or spouse.

- Adults have many roles that take priority over learner/student roles such as parent, employee, employer, or spouse.
- Fatigue increases with age and learner's attention span decreases. The optimum attention span for adults is 40 minutes.
- Adults are most productive the first 20 minutes of instruction.

Life Stages/Cycles

The following age categories list specific characteristics that apply to teaching adults in that age group.

Twenty Something

- Seek clear definitions and clear expectations.
- Seek social interaction.
- Fun is still a priority.
- Tend to be followers and study what others say they should know.

Thirty Something

- Are seeking a career, not a job.
- Want honest, constructive criticism.
- Are seeking to distinguish their strongest traits and abilities.
- Become much more self-directed learners.
- Multiple roles cause time constraints.
- Do not want to waste time.

Twenty Something -- Tend to be followers and study what others say they should know.

Forty Something

- Have set ethics and values.
- Females become more self assured.
- Seek involvement in expectations and goal setting.
- Seek application of information to work place.
- Need extra time, slower reactions.

Fifty Something

- Listen to their information.
- Experienced.
- Can't pull the wool over their eye.

Sixty Plus Something

- Are considered mentors in the workplace, so may bring the mentor role to the classroom.
- Independent learning is preferred.
- Seek information with immediate application to their individual needs.

Instructors as Facilitators - What is a Facilitator?

Michael Galbaith says, "The adult educator is in a sense a guide to learners who are involved in an education journey." A facilitator has acquired these skills:

- Proficient in their content area
- Interpersonal skills to show caring, trust and encouragement
- An understanding of learners
- Adapting teaching style to incorporate methods and techniques preferred by adult learners
- Confident personality with enthusiasm for teaching
- Ability to be creative and present subject matter in an interesting way
- Ability to relate theory to practice
- Encourage learning outcomes that extend beyond the classroom

(Continued on page 7)

Blanchard (from page 4)

> Community colleges...need not necessarily view the data or the impact of residence as irrelevant. Indeed, these data should challenge the colleges' ingenuity and resourcefulness. Commuter institutions might devise approaches to simulate the residential experience so students would spend more time on campus and interact more. If the theory about involvement and persistence is valid (and many findings support it), any programs that involve the commuter student in campus life and activities presumably will have a positive effect on persistence.(4)

So it may be even more important for colleges such as ours to search for unifying factors to deepen our campus culture and promote involvement.

Attempts at creating these sorts of learning communities, however, are not that common and when they do occur they are usually modest ventures based on paired or clustered courses. What the BCC attempt envisions is something grander; it aims at linking the courses and programs of an entire campus. Among its elements are an orientation, a campus bibliography and common readings, convocations, faculty workshops, speakers, panel discussions, films, Freshman Seminars, capstone English courses, and departmental activities. Of course, the central vehicle is general education and that is also a vehicle which has always been available, to BCC and to all other colleges. The difference is that general education is rarely made explicit and almost never approached in a coordinated fashion by all the elements of an institution nor made a focus of both the academic and student life dimensions of the institutional structure. The BCC approach does this and also overcomes the main objectives to such efforts elsewhere, namely that they are too costly and too much at variance with the accustomed practices of the faculty.

The BCC general education theme arises from the faculty and professional staff ...

The BCC general education theme arises from the faculty and professional staff and challenges individuals to use or adapt their own courses and methods to support a community effort. Indeed, beyond helping to increase the sense of community on campus an additional value of the experiment may lie in its potential to encourage reflection and creativity within the framework of existing courses and structures.

1.Richard D. Lamm, "Nonprofits" (an address to the Colorado Association of Nonprofit Organizations, Denver, CO, June 21, 1991). Reprinted in Vital Speeches, vol. LV11, no. 21, August 15, 1991, p. 647.

2.Ron L. Hamberg, "Learning Communities: Needed Education Restructuring". Leadership Abstracts, Vol. 4, number 9, June 1991.

3.Ibid.

4.Alexander W. Astin, Preventing Students from Dropping Out. San Francisco: Jossey-Bass, 1975, p.160.

Krichbaum (from page 2)

On a personal level I teach to experience change. ... I would not be as aware of the problems facing society if I did not teach.

Change brings challenges and growth. I constantly have to adjust my teaching practices to meet the changing needs of the class. The biggest challenge is to perceive how the students are understanding my explanation. Growth comes from being able to change the explanation if I feel that they have lost their understanding.

Similarly, teaching provides a great setting for interacting with other people. I enjoy learning about the lives, interests, and causes of my students. The students have taught me a little about various subjects ranging from drag racing to composting. I am given insights to the personal difficulties of some of their lives. Getting to know my students is important in providing a decent atmosphere conducive to learning. In a broader sense, by listening to my students, I am more conscious of the changes in society. I would not be as aware of the problems facing society if I did not teach.

Driving home after my first summer night class, I was glad I had decided to teach this summer. Little compares to the feeling of being in front of a group talking about a favorite subject, especially when it provides the opportunity to achieve so much both professionally and personally.

FYI

Center Stage is distributed across the campus in a general mailing fashion, that is, several copies are sent to each department office not to individuals. If you did not receive a copy of Center Stage in your mail box, extra copies are available in the Teaching Resources Center, L-213, x5354.

Notify the person who distributes your mail to make sure you receive subsequent issues.

McNeely (from page 3)

We also have a small collection on Science and Technology for a Sustainable Society. These materials are primarily from Doug Garnar's private collection and some additional materials are provided by Carl Mitcham. (Sign them out on the 3x5 cards provided.) We will graciously accept a book you'd like to share, loan or donate.

A large collection of video tapes are available at the TRC.

3. **VIDEO TAPES.** A large collection of video tapes are available at the TRC. Kurt Nelson has relocated a series of educational tapes to the TRC. These tapes have been taken off the SUNY satellite and include a wide variety of educational programs including courses from other colleges, PBS telecasts and teleconferences. Among our holdings are the "Race to Save the Planet" series, a sequence on "The Brain," and a new staff development workshop entitled "Classroom Assessment: Putting it into Practice". We also have an extensive video tape collection on "Critical Thinking," the "Global Tomorrow Coalition" tape left by Carl Mitcham and a tape of Dr. Mitcham's afternoon workshop. Arrangements can be made for group viewing in the TRC, please allow enough lead time to reserve a VCR/TV. Individual viewing can be done anytime in the Library Proper.

4. **PUBLICATIONS** Our collection includes: The Teaching Professor, Community College Review, Community/Junior College Quarterly of Research and Practice, New Directions for Community Colleges, and Technological Horizons in Education Journal.

5. **COMPUTER HARDWARE** The TRC has two computers for daily operations and faculty use. The older machine has had some problems and will be replaced with a PS/2. We have two printers, one that will print in color. We are working on getting the color printer to accept large characters, which are necessary for classroom overheads and funding funds for the overheads which are expensive. The second printer can be used for hardcopy as well as black and white overhead masters in any font. We also have 1 interactive video system (SONY video disc player and color video monitor) which will be connected to our new computer. The TRC would like to know about faculty interested in exploring this technology. The video discs and software for this system are very limited at this time.

6. **COMPUTER SOFTWARE** The following software has been donated to the TRC: WordPerfect 5.1, First Choice, and PageMaker. In addition, anything accessible on the mainframe is available. Donations of legally obtained software will be accepted.

The Teaching Center has been established for your benefit. Your presence, contributions and ideas are welcome. The chairs are comfortable, the view superb, the coffee on, and with your presence, the company will be excellent.

Allen (from page 5)

Many instructors use the methods by which they themselves best learned.

- Flexible and patient
- Nurture self-direction; thus empower adults
- Understand how adults best learn

Many instructors use the methods by which they themselves best learned. For example, if the instructor learned best in a situation when the information was assigned, read, then quizzed on the material, the instructor will have the tendency to assign reading, then quiz students. Facilitators realize this happens and will alter methods of instruction to meet the needs of different types of learners.

Aside (from page 8)

Recognition

You can increase the motivation of many students by filling some of their needs for recognition and social relationships. Get to know each student. Without discouraging low achievers, provide recognition for outstanding accomplishments. Encourage friendships between students by letting them work in groups.

Giving verbal or nonverbal praise to students who are doing their best will go a long way toward motivating them.

Approval

Giving verbal or nonverbal praise to students who are doing their best will go a long way toward motivating them. Avoid focusing on students' mistakes, but when you must, point them out in a non-threatening, uncritical manner.

Confidence

Students should be assured that they are capable of learning, although not all at the same rate or through identical methods.

Aside

Motivating Students

The following has been excerpted from Teaching in the Community College, An Orientation,The League for Innovation in the Community Colleges, HBJ Media Systems Corporation, 1981. The complete text is available in the Teaching Resource Center, L-213, x5354.

[Here are] several factors which you can use to ensure that students achieve rewards and satisfaction from their college work. Students will learn if you help meet their needs. You can design motivation into your instruction.

Curiosity

People seek and enjoy stimuli that are different from what they are used to, but too much novelty produces anxiety rather than curiosity. To arouse curiosity, ask many questions, particularly unanticipated ones. Pace learning so that each step offers something new with only a moderate risk of failure.

Success

Many community college students anticipate failure and withdraw from school when failure occurs. It is particularly important for these students to experience success, especially in early classroom assignments. All assignments should be carefully prepared so that success is possible with reasonable effort.

> Many community college students anticipate failure and withdraw from school when failure occurs. It is particularly important for these students to experience success ...

When all students must reach a certain level of competency, as in a dental hygiene course, provide success by letting students work at their own pace without penalty. When all students do not have to attain a certain level of competency, you may want to assign tasks of varying complexity, so that each student has an opportunity to achieve at his or her own level.

Grades

Grading standards should be clear and unambiguous. They should be connected to achievement of objectives and to learning that is most desired. For example, if students are told that grades are based on memorization, they are likely to memorize. If grades are based on higher skills such as integration and application, they are more likely to acquire and demonstrate those skills. Remember, grades are primary motivators for some community college students.

Grades should be a positive incentive. Research shows that threatening students with grades may produce avoidance and withdrawal rather than interest. If the traditional A-B-C system is used, students should be told that if all of them preform to A standards, they all will receive A's.

Over the years some instructors have "graded on the curve." This means that the number of grades in each category were predetermined, based on a statistical formula. For example, the instructor might give two A's, five B's, ten C's, and very few D's and F's. The formula is founded on the notion that most students are average and should get C's, whereas very few perform on the A level or the F level. Grading on the curve is not linked to performance objectives. The practice unnecessarily increases competition and reduces motivation. It should be avoided.

> Grading on the curve is not linked to performance objectives. ... It should be avoided.

Decision Making

If students help make decisions that affect them and their learning, their motivation to succeed in your course will probably increase. Whenever possible, allow students to choose from among course or lesson objectives; let them have a say in how they reach the objectives.

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Coming Next Issue

Next month's issue will deal with the college's theme of a sustainable society. The issue will be edited by Ann Sova. If you are interested in addressing that topic (pro or con), contact Ann in the Mechanical Suite, x5085, or leave a message in the Liberal Arts office.

Articles will also be accepted for the November issue dealing with (in part) changes in teaching methodology brought about by politcal correctness.

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Center Stage

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The campus theme of "Science and Technology for a Sustainable Society" provides the focus for this month's Center Stage. The scope of this topic is enormous, as the range of articles suggests. Lorenz Firsching and Joanne Maniago examine the historical and philosophical issues that lead us to a late-twentieth century concern with sustainability, while Doug Garner reviews several approaches for the future as identified in a recent book by Warren Wager. Barbara Marckx considers some of the ethical issues we now face because of advances in medical technology. Rachel Hinton and Anna Halligan take a microcosmic view of sustainability as it manifests itself in their own classrooms. Finally, Dennis Fehley, former BCC student, speculates about the relationship between capitalism and environmental degradation.

We hope that these articles will be of interest to faculty who wish to explore the issue of Sustainability in their own minds and with their students. Since the theme of Sustainbility will continue to be examined throughout the Fall and Spring semesters, reactions to the articles contained here, as well as new ones on the subject will be welcomed for future editions of Center Stage.

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Technology, Culture, and the Modern Crisis

Lorenz J. Firsching, History Department

During the decade of the 1980's, studies were done of ice samples taken from deep under the polar ice caps. These studies gave scientists a window onto the atmosphere of the Earth centuries ago. What the studies revealed was that the carbon content of the atmosphere had remained constant for many centuries, perhaps thousands of years. This changed, however, during the nineteenth century. In a little more than a century, ending in 1950, the carbon content of the atmosphere doubled. In the decades since 1950, it has doubled again. Nothing could more clearly demonstrate the power of human technology.

> ... it is only technology that enables us to detect the changes that technology has caused.

Of course, there is an irony here: it is only technology that enables us to detect the changes that technology has caused. We are often confronted with this ambiguous nature of technology. Medical technology gives us longer and better lives, yet it also poses deep ethical, legal, and economic problems. Industrial technology gives us undreamed of power and wealth, but also causes pollution, toxic wastes, and technological unemployment. Military technology gives us smart bombs and laser-guided missiles, yet paradoxically the United States has been less secure over the last forty years than at any time in our nation's history.

We are told that technology is neutral; it is human use or misuse of technology that is at fault. This is true on one level. But it is an idea that resembles the NRA claim that guns don't kill people, people kill people. True, a gun will not go off by itself; but guns give extraordinary powers to kill. With a gun, it is possible to kill with great rapidity. In the same way, technology confers extraordinary powers. Further, guns influence our values; a society where guns are common and accepted tends to be a more violent society. Technology influences and helps shape our values. Thus when we blame human values for the problems associated with technology, this leads us back again to technology.

We assume that the way we think about technology and about nature is somehow itself "natural" and "inevi-

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Firsching (from page 1)

table." But in fact our ideas are the product of specific historical circumstances. In pre-modern societies around the world, a different way of thinking prevailed. Pre-modern peoples viewed nature from a holistic perspective: everything was seen as connected. The English Renaissance judge John Fortescue wrote "There is no worm that crawls upon the ground, no bird that flies on high, no fish that swims in the depths which the chains of this order does not bind in the most harmonious concord...." Pre-modern peoples saw no division between the worlds of nature, man, and the gods. The search for signs in nature to understand political or religious events exemplifies this type of thinking; the Biblical story of the star of Bethlehem as told in Matthew's Gospel gives us a glimpse of the pre-modern mind at work.

> Pre-modern peoples saw no division between the worlds of nature, man, and the gods.

Pre-modern thought was also based on an analogy to living things; everything in nature was seen as alive. Tommaso Campanella wrote "Sense and feeling belong to all elements." His contemporary, Giambattista della Porta insisted "The world is a living creature, everywhere both male and female...." Finally, pre-modern peoples took a religious view of nature. God and nature were one; human actions in or on nature thus possessed a religious significance. This explains why such activities as mining were condemned. Ovid wrote "The rich earth/Was Asked for more; they dug out her vitals,/Pried out the wealth a kinder lord had hidden... They found the guilt of iron,/ And gold, more guilty still. And war came forth."

All this does not mean that pre-modern peoples did not attempt to control nature through technology for human benefit. But such actions were carried on with an entirely different set of values. Machines were seen as being alive, possessing a soul or spirit. The arts of technology possessed a religious significance, and the tool-maker or iron-smith was a kind of priest. The purpose of technology was to help man live in harmony with nature, not to dominate or control it.

> Technology is as much a part of human life as art or religion ...

All this began to change in Europe with the technological revolution of the period 1300 - 1800. The details of this revolution have been recounted many times, and I will not attempt to summarize them here. But two important points about the technology that Europe acquired in this period did not come from Europe; rather, it was

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The Sustainable Classroom

Anna C. Halligan, English Department

It is week five of the fall semester and the ideals of summer have faded, bleached by overexposure to evasions, excuses, lateness, absences, disinterest. "I didn't get the assignment." "You didn't tell us we had to read that." "The essay is in my friend's car -- I swear!" "The convocation was the same time as my dental appointment." Even the excuses show no originality. They lack unity, organization, coherence, substance. Do I sound like my life is a disordered drab paragraph? I've lost the thesis sentence; the colored thread that holds things together. The clarity and patience of August have paled to opaqueness.

On Wednesday at midnight of the fifth week of school, I am despairing. Greenhouse is coming. The seas will rise. Drought and famine will ravage the Earth. The Amazon rain forest is burning. Mistakenly I've saved the worst batch of essays for last.

The dynamic of this class is mysterious. Like a caricature of classroom demographics, this group has the hardest working non-traditional students I've ever encountered, along with the most resistant "students by default." The air is thick with hostility three afternoons a week. The older students are theoretical role models. At least that's the way it works in pedagogical textbooks. In the real classroom, it's not so simple. In the real classroom, the ex-high school seniors resent the work of their older classmates; the older students bristle at the indecipherable and incomprehensible essays their younger compatriots have hastily written in the hallway.

And I feel burdened in the darkness because I am responsible--I accept the responsibility every semester. The contract I sign is really a contract with myself; a commitment to a mission; a promise of salvation. I believe that writing, because it is reflective and recursive, can cause a re/visioning of self. I believe that if society is to be sustainable, it must be peopled with articulate, reasoning, engaged human beings who can read critically and write well. Part of my job is to nourish the growth; to affirm the progress; to validate the journey; to support the spirit of each student who shares my classroom.

The essays won't look so irredeemable in the light of morning. Like Scarlett, I'll be able to see the possibilities. I'll be positive and empowering. I'll craft the magical comment that will trigger enlightenment. I will be sustaining.

At 2PM on Friday, the ideals of summer will be freshly colored with hope.

Science/Technology and a Sustainable Future

Joanne Maniago, History Department

For the past two and a half centuries in the Western European orbit (Western Europe, North America, and Japan) science and its offspring technology were considered to be the saviors of mankind. Homo sapiens have always looked for a super hero to provide comfort, pleasure, and leisure thus avoiding life's realities of discomfort, pain, and physical labor. By 1700 the literate class was convinced that science and technology was that superhero. And in a way it was! In the 18th and 19th centuries the "good life" was only for the few who could afford it. However, by the beginning of the 20th century and the maturing of the practical application of science and technology called the Industrial Revolution, it spread to the majority, at least within the Western European orbit.

No longer was travel slow, uncomfortable, and dangerous. By 1945 we had diesel powered ships and trains. The internal combustion engine gave us cars and planes for ever faster speeds. The telephone now made it possible to instantly talk with friends or business clients anywhere on the planet. Electricity made living more pleasurable and necessary housework less time consuming. Consumer goods production and food processing added to the leisure time, especially for women. Professional sports, movies, and on the horizon TV, assured entertainment for those leisure hours. From factory worker to company presidents we had paid vacations for the first time in history, eight-hour working days in reasonably safe surroundings. Modern medicine and dentistry with their new medications, diagnostic equipment and surgical procedures were relieving us from pain, helping us to cope with the stress of being pushed to do more faster, like the machines, and even increasing our life spans.

In addition, those people in the white coats had just figured out how to split the atom which meant more and cheaper energy and power to run our increasingly mechanized life style. Right on schedule, science and technology were doing their job, producing more bang for less bucks. Life was good!

Right on schedule, science and technology were doing their job, producing more bang for less bucks. Life was good!

Then in 1962 Rachel Carson's Silent Spring introduced the masses to a new word -- ECOLOGY. This middle-aged lady, a marine biologist by trade and a bird watcher by hobby, began to get concerned about disappearing species of birds and decided to look into why. In her book she pulled together known but scattered information about the development and use of chemical pesticides as they affected ecological chains of life. plants, insects, and man. All of these had been developed with the best of intentions. We would control nature through killing "pests," both insect and plant, so more food could be grown, and prevent the spread of diseases like maleria and yellow fever. DDT (dichloro-diphenyl-tricholoroethane) was first used as an insecticide in 1939, but not widely until after World War II. DDT, Chlordane, Heptachlor and Dieldrin do not have to be ingested to be fatal. They can enter the host through the pores and then are stored in fatty tissue until the amount becomes toxic and the host (bird, fish, mammal or man) dies. Her book closed with this statement:

All of these had been developed with the best of intentions.

> The "control of nature" is a phrase conceived in arrogance, born of the Neanderthal age of biology and philosophy, when it was supposed that nature exists for the convenience of man.

The book had an immediate impact on the public. Her documented statements hit home not only with the bird and nature lovers, but with the farmers, lumbermen, cattlemen, and other persons intimately involved with the ecological concerns. Some laymen began to join with the "fringes" of the scientific community to reevaluate the word PROGRESS. But government, the corporate structure and the majority of the citizens just shook their heads over anyone paying serious attention to the concerns of a middle-aged female bird watcher. As the spokespersons for chemical producers Dow and DuPont pointed out, she was probably just going through menopause.

But the fight was on seemingly between ecologists and science and technology, or was it? Some scientists are leading ecologists. The real battle may include more interests than these.

Then in 1966 came economist Kenneth Boulding's "Economics of the Spaceship Earth," and biologist Garrett Hardin's "Tragedy of the Commons." These were introduced into college and university classes where discussion and interest spread. In 1970 the people that brought you the Vietnam protests and the Civil Rights Movement also joined in the first EARTH DAY! Sen. Gaylord Nelson of Wisconson led the movement for a nationwide day to promote ecological awareness, and in the 20+ years since April 22, 1970, we have learned to take Mrs. Carson seriously.

We the people have finally recognized that some technologies are destroying the planet because the production of things we consumers demand leave waste byproducts which are toxic to most life forms except cockroaches. Why don't we just get rid of the toxic waste? We

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Maniago (from page 3)

don't know how. Then why don't we just quit making the stuff until we know how to dispose of it safely? Because we want the comfort, pleasure, and leisure they bring.

But it's not all the fault of the consumer. Like most problems there is a systemic cause. We have built an economic system on the concept of constant growth. Every year more stuff must be produced and sold to make constantly increasing profits. Shopping malls and office buildings are a glaring example of producing things we don't need just to keep the system going. To make sure consumer items sell, the system invented "built in obsolescence" and "throw away" ethics. Recycle, repair, or reuse became dirty words in the 1960's, `70's, and `80's.

...the whole society seems to have suddenly recognized that some uses of technology are destroying the planet and we must act to save ourselves.

By the 1990's the whole society seems to have suddenly recognized that some uses of technology are destroying the planet and we must act to save ourselves. Animal life cannot survive without clean air, water, and food. Ecologists have been discussing sustainability for the last twenty years and finally political and economic leadership who have trailed woefully far behind the public are at least beginning to use the term. Sustainable agriculture, sustainable life styles, and sustainable technology.

What is sustainable technology? Robert Olsen in the May-June 1991 issue of FUTURIST defines it as "technology which can satisfy present needs without jeopardizing the prospects of future generations, and can be used by all people for all time without exhausting resources or having unacceptable environmental consequences." This covers all the bases and sounds good, but in practical terms, what will it look like?

Sustainable technologies for the future will take two paths. One was anticipated by J. F. Schumacher in his 1973 best seller, SMALL IS BEAUTIFUL. He called it "appropriate or intermediate" technology. Traditional Science and Technology applications in the 20th century have tended to overkill, especially in relation to third world nations. A village needs a well or a simple pump to get water into the village. It should be made of available materials and villagers should understand how it works well enough to keep it in good repair themselves. This is appropriate technology. Science and Technology tends to talk and plan in terms of a complex of dams and hydroelectricity powered turbines to run pumps big enough to supply New York State. The cost and maintenance were out of the question and unnecessary.

We didn't realize in the 1980's that even the United States could use some appropriate technology. In 1980 Roger Smith took over GM and invested $80 billion creating a high tech production system for automobiles. This included buying Electronic Data Systems, a computer services firm to mastermind the operation. The result was a disaster. According to the August 10, 1991 issue of THE ECONOMIST:

> The production lines ground to a halt for hours while technicians tried to debug software. When they did work, the robots often began dismembering each other, smashing cars, spraying paint everywhere or even fitting the wrong equipment. Automatic guided vehicles installed to ferry parts around the factory, sometimes simply refused to move. What was meant to be a showcase plant turned into a nightmare.

A perfect example of inappropriate technology. There are some things robots can do well, but most complex assemblies can be done better by human beings using computers and robots.

> It became apparent that the way workers were trained, motivated, and managed, not high technology, was the real key to competitive car making.

A practical example here on campus is the water fountain in the new gym across from the dance room. They apparently wanted to save water with an automatic turn off so the invested in very expensive fountains operated by electronic chips.

This particular one lasted about 5 months; its usual life span is 6 months. The transistor broke and had to be replaced at a price almost as much as the original fountain. So the head of maintenance said "Forget it. Go to the hardware store and get a plain faucet that will last four or five years, and when it breaks we can fix it." High tech is fine in its place, but we must stop trying to kill ants with hydrogen bombs. Bigger and more complex is not always better, or even sensible.

... we must stop trying to kill ants with hydrogen bombs.

The second path is to have better and more advanced Science and Technology. We are now at the beginning (the first 150 years), not the end of revolutionary changes in technology. Within 50 years everything that passes for HIGH TECH today will be a museum piece. To be sustainable this new technology must (1) be based on a safe and inexhaustible source of energy (2) be highly efficient in use of energy and other resources, and (3) produce no waste that is damaging or is not biodegradable or recyclable. This is a big order, but certainly not

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The Sustainable Society: Futurizing Human Development

Douglas Garnar, History/Social Science Department

During a recent address to the National Press club the leader of the Ukraine noted that history had once again begun to move in his land. Events set in motion by Mikhail Gorbachev's twin policies of Perestroika and Glasnost helped to produce the East European revolutions of 1989 climaxing in the fall of the Berlin Wall. These events coupled with the remarkable overthrow of the Communist Putsch this past August signalled not only the end of the Cold War, but also the unfreezing of history. Humanity is no longer held prisoner in the glacial grasp of an ideological struggle between East and West. Rather, it now free to address the most fundamental material, ecological, and spiritual problems of modern industrial civilization.

... both spoke of the need for the creation of a "sustainable" model of human development.

Recent speakers to our campus, Carl Mitchum and Alan Durning, both spoke of the need for the creation of a "sustainable" model of human development. It was apparent from their respective talks that sustainable human development occurs when human beings are able to meet both their basic needs (psychological needs as well as safety and security) and their growth needs (loving and belonging, self-esteem, and self-actualization) without jeopardizing the opportunity of future generations to do likewise.

Mitchum and Durning questioned the proposition that humanity has indeed discovered a viable model for sustainable human development. Citing an impressive array of environmental indicators ranging from desertification and ozone depletion, to the dangers of global warming and inadequate waste disposal, both argued that modern industrial civilization, if left as is, would not lead to sustainable human development.

Clearly we are challenged as educators to explore with our students what a viable model of sustainable human development should look like. Our task is to stimulate students to consider the complexity of sustainable human development and to recognize that there are a number of possible paradigms to consider.

In an extremely suggestive monograph W. Warren Wagar makes the case for three possible paradigms of things to come: the technoliberal future, the radical future, and the counterculture future.* All three paradigms are opposed to racism in its various forms, sexism, religious bigotry, intolerance, and share a concern for the preservation of the biosphere.

According to Wagar, the technoliberal paradigm posits an abiding faith in the power of technology and managerial techniques to solve human problems and to help preserve liberty. In the final analysis it favors growth and development through the resourceful application of knowledge to the satisfaction of human needs.

Despite its condemnation of capitalism, Wagar sees the radical paradigm as sharing many similarities with its technoliberal counterpart, most notably its commitment to rapid economic growth and capital intensive technology based on the values associated with reason, science, technology, and progress.

Pitted against both the technoliberal and radical paradigms is that of the counterculturalists. Central to this paradigm is the argument that what is really needed is a cultural transformation of modern civilization. Wagar sees the counterculturists as calling for a simpler, less centralized society, emphasizing more traditional ways of life. The counterculturists also call for a subordination of science, reason, logic and technique to the powers of the heart and spirit. In the final analysis they appeal to a revived sense of sacredness of the person, humankind, and the earth.

The threefold typology of the future of human development offered by Wagar is a convenient starting point as we search for the keys to a sustainable future, but it is only that. There are a number of hard technical questions that students must be asked to consider. For example does the earth have a finite carrying capacity with respect to the human family? If so, what is it, and how should we be prepared to respond to it?

Another complex issue involves the degree of environmental damage done by industrial civilization. How severe is it in reality...

Another complex issue involves the degree of environmental damage done by industrial civilization. How severe is it in reality, and what can be done to restore the biosphere? Put another way is modern industrialization sustainable without serious modification?

Beyond these issues remain some truly profound questions regarding basic human values. For instance, is endless material growth actually desirable (assuming it to be environmentally sustainable)? Is the tendency in modern civilization toward the centralization of power one to be ultinately resisted, arrested, or supported? Regardless of how one answers the questions it must be clear that future history has many twists and turns left--put another way, the future is still open-ended.

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Medical Technology for a Sustainable Society

Barbara Marckx, Nursing Department

Since the fourth century the Hippocratic oath has sworn physicians to apply measures which will benefit the sick and avoid harm. Certainly this too is the identified objective of medical technology. In earlier times scientists had limited ability to change the health of individuals but in the modern age they can profoundly affect matters of life and death. Many advances in technology, although intended for the enhancement of health, result in unintended effects which create dilemmas for a sustainable society. I have selected a few current examples to illustrate the problem.

The Federal Drug Administration approved Norplant in December of 1990. Implanted in the upper arm, this drug releases hormones for a period of five years providing very effective and convenient birth control. Some unintended events have occurred which complicate the enthusiasm over the drug's merits. A state representative in Kansas proposed that women on welfare be paid a bonus of $500 if they agree to Norplant therapy. A California judge offered a woman convicted of child abuse the choice between a long prison term or Norplant. In one locality a bill has been proposed that would require treatment of drug offenders with Norplant. Are these punitive uses for a drug consistent with the intent of the development of technology for a sustainable society? A screening test to determine the carriers of Cystic Fibrosis was developed in the summer of 1990. This common hereditary disease affects the digestive and respiratory systems of children resulting in severe malabsorption of nutrients and fatal obstruction in the lungs. Since carriers can now be identified, could insurance companies refuse to cover the care of a child with Cystic Fibrosis if the parents were known carriers? Would the possibility of identifying Cystic Fibrosis in a fetus via amniocentesis lead to an increase in the numbers of abortions? Is this a form of genetic selection and is it consistent with a sustainable society.

> Many advances in technology, ... result in unintended effects which create dilemmas for a sustainable society.

In 1987 a Mexican surgeon successfully treated five patients with Parkinson's Disease by transplanting fetal adrenal gland tissue into the patient's brains, thus supplying the deficient hormone. Parkinson's is a common incurable nerve disorder of the elderly that leads to rigidity and tremors. Current medications have disturbing side effects and patients eventually become totally incapacitated. Fetal tissue is healthy and grows rapidly making it the perfect donor tissue for numerous other disorders. Although the possibility of miraculous cures is exciting, the concern is from what source would this tissue be obtained? Few would take issue with fetal tissue obtained from a miscarriage but securing such products is to uncertain to be useful. If fetal transplants were to be widely successful, a tremendous demand for aborted tissue might reasonably lead to women becoming pregnant and aborting for a fee. Is this the kind of market driven society we desire for our future?

At both ends of the life cycle ethicists are debating over heroic care issues. They are questioning the tremendous expenditure of resources in saving tiny infants who have a poor chance of living or who may exist for years with severe impairments. Although it is possible to save infants of less than one pound today, does that mean that all should be rescued? Is the infliction of long term suffering on these babies and their families a viable strategy in a sustainable society?

At the other end of life are the elderly - - that 12% of the population who consume over 31% of the health care dollar. Just because the technology exists to treat the very old vigorously, should endless resources be tapped for persons who have outlived their own desire for living? A leading philosopher, Daniel Callahan, proposed in 1987 that perhaps some limits should be established on spending for health care for the very old. Is his idea shocking or a necessary step toward conversation of scarce resources to sustain our society?

Eighty years ago the first corneal transplant was accomplished and since then technology has advanced to permit transplantation of a number of vital organs. Twenty years ago one questioned if transplant surgery were too risky, but today the question is where will we get all the donor organs that are needed? It is estimated that 50-100 thousand lives could be saved by heart transplants alone. Thus it raises the question whether public policy should be changed to repeal the law requiring voluntary donation of organs, or should control over one's body parts cease with death? Another law prohibits the sale of donor organs, but would a profit driven market supply be a more humane way to save lives? The kidney function is considering recommending a modest financial benefit for donor families to cover funeral expenses.

> ...should control over one's body parts cease with death?

Finally I wonder if American values toward life and death have come full circle. A few years ago a physician in the midwest devised a death machine to assist his patients in completing suicide. This summer the book Final Exit, a how-to-book for suicide, has remained on the New York Times best-seller list for many weeks. Has medical technology become so valued for the wonders it can achieve,

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Writing as a "Sustainable" Skill in the Technologies

Rachel Hinton, Computer Studies

"I don't have to know how to write! What's so important about it?" Sound familiar? I must have heard this hundreds of times from my Freshman computer students. They seem to believe that studying technically oriented subjects absolves them of the need to be able to organize their thoughts and put them on paper in a coherent manner. While it is a shame that many of our students come out of High School unable to compose a grammatically correct paragraph, it is even more alarming that they haven't learned the value and power of the written word. However, during the summer of 1991 my CST 119 students and I learned a valuable lesson.

Computer Concepts and Applications (CST 119) is a Freshman survey course which explores computers and their use in the world today. In lab, students learn how to effectively utilize microcomputer software such as wordprocessors, spreadsheets, and databases. Students are introduced to wordprocessing in the second week of class and are repeatedly encouraged to use it throughout the semester. Why? Hopefully, the students are provided with a powerful tool they can use in other classes. What is unfortunate, is many of them feel that a spell checker is all they need to successfully write a paper. When I hear this I cringe and tell my students that even brilliant ideas are wasted if expressed in an incomprehensible fashion.

> It IS important to be able to communicate competently.

Well, you found me out! I value the written word very highly. It IS important to be able to communicate competently. In addition, it is also important to be able to read and understand other people's ideas. In an effort to teach these concepts, they are combined and offered as an assignment that counts for 10% of their grade. Each student is required to find an article with a computer-related topic and write a summary of it. This assignment is also given for other reasons which is why the only restriction is that they can not do any kind of product review. It gives the students an opportunity to explore subjects that we may not cover or only touch upon. It also gives me a chance to see what their areas of interest are.

The assignment sheet provides a detailed description of the assignment and a copy of the grading policy which must be turned in with the final product. In addition to their use of the wordprocessor, the students are graded on the content, structure (grammar, punctuation, and sentence construction), and organization of ideas in the summary. Originally, the only additional help I provided was a handout I received from a Writing Across the Curriculum workshop called ``Writing Summaries''. While this helped some students organize their thoughts, it really didn't help them with their grammar and sentence construction problems.

This was also my problem because grading this assignment was a nightmare! It took me over two hours to grade one of these reports and I usually have three or four sections of this class with up to twenty students each. The process of grading included reading the article and then comparing the summary. Unfortunately, I spent most of my time correcting grammatical errors. (Although I tease them about hating me as their computer instructor, I figure they'd really hate me as their English instructor. You see, Mom was an English teacher and I guess some of it rubbed off on me.) I needed HELP!

The students needed help too. Many of them didn't realize that writing skills help was available right on campus. I wanted them to know that help was obtainable. I decided that a trip to the Writing Center was in order. I met with Roberta Williams and asked her what the school policy was on requiring students to visit the Writing Center for a particular assignment. She said that some of the Liberal Arts classes required it, but none of the Technology based courses did. With her help, I decided to try a daring experiment. For the summer class, I amended the requirements to include a trip to the Writing Center with a draft copy of their summary. As an incentive, the students were given 5 points towards their grade for showing up at the appointment. To facilitate this, Roberta juggled her staff so the students could be accommodated.

> Not only did it take less time to grade the papers, but they were better written than most others I had seen in the past...

What can I say? The experiment succeeded far beyond my expectations. Not only did it take less time to grade the papers, but they were better written than most others I had seen in the past and therefore more enjoyable to read. However, until my conversations about this article with Ann Sova, I didn't realize the most important benefit was gained by the students. She pointed out that while I took the time to correct their errors in detail, I really didn't have the time to teach them the skills they needed to write their next papers better which was really what I desired. By sending them to the Writing Center they could meet with people who had the time and expertise to teach them these life-long skills.

Where do I go from here? Well, as we say in computer parlance, I'm going into beta testing. This semester we are trying our first large scale attempt. In the one summer class there were only eleven students so Roberta and her staff were able to meet with students on an individual basis. She and I have agreed that this will not

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Firsching (from page 2)

originally invented in China, India or the Islamic world. This points to the fact that technology is a human activity, not the sole product of Western man. Technology is as much a part of human life as art or religion, which is why no simplistic anti-technological solutions to human problems can work. The second and more important point about the technological revolution is that it occurred in certain specific historical circumstances. The rise of national governments, the development of a capitalist economy, the discovery and conquest of the New World, the Scientific Revolution, and the growth of individualism in Western culture all occurred in the same period from 1300 to 1800. Each of these developments both influenced and was influenced by the technological revolution. Thus a set of values developed in the Western world bound up with technology.

A new and radically different way of thinking about nature arose in the Western world. An analytical view of nature replaced the holistic view; nature was seen as a problem, to be solved by breaking it down into ever smaller parts. Nature was also seen as non-living, a "thing" (or many things). And nature was seen as separate from both man and God. Capitalism influenced Western man's view of nature as well, as a reading of Robinson Crusoe demonstrates. Nature was seen as a resource, a kind of capital, to be exploited for human benefit. The Western view of nature was also influenced by nationalism, and the conquests in the New World. Nature was seen as an enemy, to be conquered through the force and cunning of technology.

> Nature was seen as an enemy, to be conquered through the force and cunning of technology.

With these changes came the rise of the idea of progress, a notion unknown to ancient thinkers. The future was seen in terms of ever-growing wealth and power created by technology. Western man came to believe that all problems could eventually be solved through technology.

There are many examples today of these ideas at work. AIDS, for example, is seen as an enemy, to be conquered by medical technology. It is inevitable, we assume, that AIDS will be conquered. Both the lumber industry and many environmentalists see trees as a kind of capital, a resource to be exploited for human benefit; they merely differ over how to exploit this particular resource.

The relation of technology to the modern crisis cannot be seen in simple terms. Technology gives us enormous power to change nature and human society. But how will that power be used? As I have tried to illustrate, the values we look to to help us solve this question are themselves the products in part of our technology, and of the complex historical circumstances in which modern technology evolved.

At present a sort of "mainstream" view of nature and technology exists; although by no means unchallenged, this view remains part of the consciousness of most people in the West and the educated elite in the Third World, and it is the "official" ideology of the governments of the United States and some other nations. According to this view, nature exists as a resource to be exploited for human benefit, through technology. Technology is the source of progress and a source of unending benefits for man; all or at least the majority of problems can be solved through technology.

> ... it is the "official" ideology of the governments of the United States...nature exists as a resource to be exploited for human benefit, through technology...

The speakers who will be presented at this Fall's theme workshops will all, consciously or unconsciously, present a set of values about technology. Some will show the influence of this mainstream view; others will present alternatives. One of the ways the extra-curricular events connected to the theme of ``Science and Technology for a Sustainable Society'' can be of most benefit to our students is by helping them to become aware of these values. At this critical juncture of human history, we must become conscious of the relation between technology and values; whether we ultimately affirm the ``mainstream'' Western view of technology and nature or seek to create a new way of thinking, we can no longer afford to remain unaware of the complex interplay between our culture and our technology.

Bibliographical Note

Two of the best sources for understanding pre-modern ideas on nature and technology come from literary scholars: C.S. Lewis, The Discarded Image (1964) and E.M.W. Tillyard, The Elizabethan World Picture (1942). Carolyn Merchant's important and controversial The Death of Nature: Women, Ecology, and the Scientific Revolution (1980/1990) provides a wealth of ideas. Keith Thomas's Man and the Natural World (1983) provides interesting insights into changing views of nature, while his earlier Religion and the Decline of Magic(1971) is a tour de force on the transition from pre-modern to modern thought. The second episode of the documentary series ``Africa: A Voyage of Discovery'' provides fascinating insights into pre-modern attitudes towards technology.

Maniago (from page 4)

beyond man's ability. However, whether we achieve it or not is not dependent on technology.

The one thing no one wants to discuss is sustainable economic-political institutions. Until we do something to change the unreasonable goals and ethics of these systems, technology will continue to be misused and unsustainable. This is the reason we can't just sit by as Herman Kahn and his followers suggested, and wait for Science and Technology to solve all of the problems they created. Science and technology didn't create the problems, it just provided knowledge and machinery that gave man and his economic-political institutions the ability to do the damage. Acid rain, ozone depletion, greenhouse effect, dangerous fission power, toxic wastes in water, air, and soil,weren't caused by Science and Technology, but by man's greed, irresponsibility, and unintelligent behavior in using (or misusing) it. We were all -- Science and Technology, individual consumers, producers, and politicians -- involved in creating the environmental problems which face us, and we will all have to be involved in the solutions.

Garnar (from page 5)

In the summer of 1989 Francis Fukuyama argued in a now famous article, "The End of History," that liberal, democratic capitalism had met head on its two main ideological competitors, fascism and communism, and both had been soundly defeated. What Fukuyama seemed to miss completely is that with the defeat of fascism and the end of the cold war signalling the end of communism (as it has been practiced to date) history was now free to move down new paths. Hopefully, a model of sustainable human development will emerge—one that will successfully address the material, ecological, and spiritual crises of individual civilization.

Our challenge then as educators is to explore with our students what the major features of such a sustainable development paradigm would look like---a daunting task, but one worthy of our profession. If not us, then who?

*see W. Warren Wagar's THE NEXT THREE FUTURES: PARADIGMS OF THINGS TO COME

Marckx (from page 6)

that the society of people it is intended to serve finds its power oppressive? Is true sustainability the sheer possibility of existing or is the quality of existence the more crucial criterion?

Hinton (from page 7)

be feasible as there are currently five CST 119 classes being run this fall. She plans to have the students meet in small groups with either a member of her staff or a peer tutor. They will work together to analyze and refine each others work. We hope that in the long run, not only will they learn better writing skills, but they will also learn critical thinking and analysis skills as well as how to work as a team, one of the most important skills for creating a sustainable society.

Feheley (from page 10)

not ``account'' for disease downstream from the pollution source, or carried on the wind, or etched on chromosomes to be the heritage of the future. These charges would have negatively impacted the balance sheet.

Many of our pollution problems are intertwined with economics and politics. I see the solution to these problems as having three major components. Individuals and businesses must accept responsibility for their actions against the environment. Government planning and legislation on environmental issues must be long range for the benefit of society, and must resist manipulation by self-interested individuals, corporations, or political action groups with tunnel vision. Finally, the most important component in preserving what remains of our Earth's assets is an individual commitment to ecology. We must evaluate what we consume in the light of our real needs, fitness of purpose, available alternative products, and the final disposition of an item and its packaging through recycling, incineration, and land-filling. People vote for products by opening their wallets. If markets do not exist for wasteful products, such products will not be produced. I believe a future-looking society will see the absolute folly of immediate consumer gratification, and the accumulation of over-packaged, overpriced objects will soon lose its fashionable status.

Suggested Reading

Several of the books mentioned in this issue's articles are available for loan from the Teaching Resources Center. Titles include:

- A Short History of the Future, Wager
- Gaia: An Atlas of Planet Management, Myers
- Mankind at the Turning Point: The Second Report to the Club of Rome, Mesarovic and Pestel
- Several editions of The State of the World, the Worldwatch Institute

Don't Fool With Mother Nature

Dennis Feheley, Student

I have been thinking about ``Gaea'' because I never had been exposed to her before last month. James Lovecock, who originated the concept of the Earth as an integrated organism, writes, ``Gaea, as I see her, is no doting mother, tolerant of misdemeanors, nor is she some fragile and delicate damsel in danger from brutal mankind. She is stern and tough, always keeping the world warm and comfortable for those who obey the rules, but ruthless in her destruction of those who transgress.'' The physical Earth will adapt to man's tampering with its systems, but manking has the potential to destroy the ``living balance'' that allows humans to inhabit this planet.

One of the principle moral/ethical issues regarding the protection and utilization of the Earth is our society's obligation to conserve and protect the finite resources of this planet for the unborn generations.

One of the principle moral/ethical issues regarding the protection and utilization of the Earth is our society's obligation to conserve and protect the finite resources of this planet for the unborn generations. Policies and legislation regarding the care and protection of the air, ozone, land, material resources, and water are essential because people tend to accept any solution that looks quick and cheap, and tend not to spend too much effort exploring the consequences of a decision.

A quick coat of paint or asphalt may hide crumbling infrastructure for a short time, but the cracks will be back, and usually the cost of repair or replacement has significantly increased. It reminds me of a joke--Question: What was the last thing one astronaut said to the other before blastoff? Answer: You realize that this thing was built by the low bidder. Government, businesses, and individuals often take the lowest bid. Do we as a society get what we pay for or what we deserve?

I believe that the current American value system and our capitalistic economic system are two basic causes for most of our ecological problems. To me, money is how capitalists keep score. Too many people focus only on the dollars and do not consider the consequences of their actions over the long run.

In my perception of the current American value system, we consciously and subconsciously evaluate other people by what they own, what they wear, what they say, how they pronounce it, what they drive. We are bombarded with encouragements to ``Dress for Success,'' ``Build a Powerful Vocabulary,'' and arrive in ``Cadillac Style.'' I understand the attempts to motivate people to acquire certain material possessions through advertising. Even the New York State Lottery advises us that all we need is ``A Dollar and a Dream.'' I'm old enough to remember when the politicians told us that the profits from the lottery would be used for education. It sounded good. I believed it. I buy lottery tickets, haven't won much, but still have the ``dream.'' We are a society motivated by money. We are encouraged not to look beyond our own little niches, our own self-interest. But the dream is turning into a nightmare.

Human wastes pollute the water and land. Chemical fertilizers may make the soil useless for future generations but turn a profit today. I know a family that used to live and play at the Love Canal area that has lost a family member to cancer, and several other family members are currently sick. I read about the destruction and pollution of land in South America, not only to harvest timber or graze cattle, but also the clearing of land with herbicides to grow illegal drugs, and pouring toxic chemical wastes leftover from drug processing onto the land or into streams. I saw a truck outlined with red-orange flags on Route 17 last week carrying concrete coffins holding nuclear waste. Our newspaper tells us about the pollution of wells by chemical wastes in Vestal and Endicott. I've read articles recounting how major corporations have ruined soil and streams, and they've said they did nothing that was against the law. They paid a fine but did not acknowledge guilt. They probably turned a profit, or at least kept expenses down for the accounting period by not disposing of their wastes in an environmentally responsible way. They did

(Continued on page 9)

Coming Next Issue

The next issue will deal with the topic of calculators and personal computers in the classroom, how political correctness is affecting the classroom, and a continuation of the "Why I Teach" series.

You are encouraged to write on these or other topics. The submission deadline is October 25 for unsolicited articles, or October 31 if you contact the editor prior to submission to discuss your topic.

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Center Stage

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The topic of calculators and small computers in the classroom has been of interest to me for several years. Calculators are as common to the classroom as ants at a picnic, and often are just as bothersome. It appears the power of the calculator is rapidly outpacing the acquisition of skills and tenacity needed to master these little marvels.

On the horizon we see notebook computers with pen interfaces, and fully functional palmtop computers the size of a stack of 5"x7" index cards. Of course these things will be driven by state of the art software keyed into each academic dicipline. The questions we will eventually have to face are: how much power and ability do we want our students to defer to their machines, and how much class time do we want to devote to instructing students on using their software.

Also in this issue: Richard Stoner provides a lighthearted look at gender problems in his English classes, Roberta Williams discusses humility in teaching, and the series "Why I Teach" continues. Enjoy. -- ed.

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Why I Teach?

John Butchko, Humanities

A job where you can be creative...be yourself...meet many interesting individuals each year...help others achieve proficiency and/or success...work with state-of-the-art equipment...and go home at night with positive feelings about your workday. The aforementioned are major reasons I teach. However, there are other underlying reasons I teach and why BCC.

Early on in my life I discovered one of my strengths was the ability to get a job done alone without others contributing their two cents to my scheme. This continued into sports: weightlifting, boxing, wrestling, and track, where I was in control of my actions. Much of my confidence today was unconsciously being developed in my pre-college school years. Oh yes, I was a game player also, engaged in band, orchestra, football and other "tomfooleries." Even in Boy Scouts I felt comfortable in leadership roles and in helping my fellow comrades.

In junior high school I was asked by a counselor what field of study I wished to undertake in high school. I, like many, replied "I don't know - what's available?" This information I took home & discussed with my parents. At that time, my father (a policeman) confessed he always wanted to be a teacher - I guess, subconsciously this influenced my choices later in life.

> ... I discovered a very dedicated faculty who were knowledgeable and seemingly happy in their job setting.

Several years later I graduated from high school with a pre-college electrical engineering degree, therefore, BCC's Electrical Technology program was a logical choice for post-high school studies. It was in this curriculum I discovered a very dedicated faculty who were knowledgeable and seemingly happy in their job setting. This was not my best educational performance time, however, and due to the dedicated push of many professors and most prominently Professor Robert Beers, I graduated in '68. Well, due to marginal GPA, lack of funds, uncertainy of the Vietnam draft and general confusion as to how to continue my life I decided to seek employment.

(Continued on page 9)

Why I Teach

Martha Fenty, History/Social Sciences

If people still took last names from their family's occupation, my name would have been Martha Teach. I come from a family of teachers. From nursery school, where my grandmother was a teacher, through elementary school and high school, I was surrounded by my father and various uncles, aunts and cousins. I felt that I could not escape. Is it any wonder that out of sheer frustration I announced, "I will never be a teacher!" There was a time that I wanted to be a speech therapist; I even considered becoming a musician.

Well, here I am, a teacher; I've been so for over 20 years. When I was asked to write an article on why I teach, my first thought was to answer , "Because I love it." End of article. But that response is imprecise. The question I should be answering is why do I love teaching. Let me be like E.B. Browning and count the ways.

I love the rewards of teaching. Of course one of the rewards is time off, especially summer vacation. I remember an acquaintance who left teaching for a job in industry. Her most difficult adjustment was having to work 50 weeks of the year. I'm sure I would feel the same way. Vacation time was particularly important to me when my children were young. Now that my children are grown, I still find that aspect of teaching more appealing.

Even more significant is the reward of watching my students learn, of helping them overcome obstacles and achieve success, of seeing them move from can't to can, of having them tell me months or years later how beneficial the skill was that I taught them has been.

I love the challenge of teaching.

I love the challenge of teaching. The challenge of teaching relates directly to the involvement with students. Teachers have an enormous impact on the many lives they touch. The potential for affecting, maybe even changing, someone's life is a challenging responsibility. Having an effect on others is more than teaching facts and skills; it's also being an example in terms of demeanor and attitude.

Involvement with students includes being flexible and able to meet unexpected situations. Each class is different; classes have personalities just like individuals do. Part of the challenge of teaching is to interact with these individuals who make up a class, engage them, and find the right teaching tools to suit them. I strive to make classes interesting and fun. That too is challenge -- to be interesting and fun and still impart knowledge. Though I may teach the same course from year to year, the students make each experience different.

I love the educational stimulation of teaching. My education did not stop when I stepped into the classroom. In one sense, that's when my education really started; it continues with each year I teach. There are many aspects of teaching which broaden my educational horizons. My learning is ongoing as I prepare for classes, read articles and journals, and chat with colleagues. Most of all, I learn form my students. In class interacting with students, reading papers, listening to speeches, I still experience the exhilaration of saying to them or to myself, "Gee, I didn't know that".

My education did not stop when I stepped into the classroom.

I may have chosen a career in teaching because my family influence or because my other options weren't practical. I continued that career because of the rewards, challenges, and educational stimulation it affords me. I've heard it said, "If you love your job, you will never have to work a day in your life." I'm lucky to have chosen a job that I love.

FYI

Through an arrangement with the Vice-President of Academic Affairs and the editor of Center Stage, this publiction is pleased to announce its inclusion in Resources in Education (RIE). RIE is a monthly abstract journal announcing recent report literature related to the field of eduction, permitting the early identification and acquisition of reports of interest to the educational community. Information is arranged as document resumes cross-indexed according to subject, personal author, institution, and publication type.

RIE is sponsored by the Educational Resources Information Center (ERIC) of the Office of Educational Research and Improvement in the U.S. Department of education. ERIC is a nationwide information network for acqiring, selecting, abstracting, indexing, storing, retrieving, and disseminating significant and timely educational reports. Its coordinating staff is in Washington D.C. with sixteen clearinghouses located at universities or with professional organizations across the country.

If you would like more information on ERIC, or would like to learn how to use it, ask the reference librarians to point out copies of the abstract. There are several years of back issues on file in the reference section of the library alongside the other periodical abstracts.

Humility

Roberta Williams, Writing Center

Two basic assumptions guide my conduct when I teach literature. First, I must share power with students if I want them to become active participants in their education: I am not the dispenser of "right" answers but a guide and co-learner in a process of inquiry. Second, I have a responsibility to help students understand how experience both enables and hinders us; I want them, in the course of taking in and synthesizing new knowledge, to recognize and push against their experiential boundaries, acts which require courage and faith. I need, therefore, to practice humility. If I hide my own fallibility, how can I expect students to risk exposing theirs? Without humility, I doubt there can be a free-flowing exchange of ideas from multiple perspectives, a dialogue of quality which will engender critical thinking.

> I must share power with students if I want them to become active participants in their education ...

I believe with Paolo Freire that everyone is "capable of looking critically at his [or her] world in a dialogical encounter with others" (13) but that a productive dialogue cannot occur if "the parties (or one of them) lack humility" (78). Freire asks, "How can I dialogue if I always project ignorance onto others and never perceive my own?....How can I dialogue if I consider myself a member of the in-group of 'pure men' [sic], the owners of truth and knowledge, for whom all non-members are 'these people' or 'the great unwashed'?....How can I dialogue if I am afraid of being displaced, the mere possibility causing me torment and weakness?"(78-79).

Humility. It's not enough to acknowledge the outer edges of my experience as I already perceive them. I must also allow for the possibility of narrower bounds that I might yet discover. And I must take particular care in approaching people and texts from different cultures. (I find "different" problematical here but use the word anyhow because I can't think of another term that would serve better; from any other center of orientation, my own culture would be "different.") As a scholar recently said, people within any culture have an "experientially determined ability to direct discussion" of their own subjectivity, language and history (Foreman 12). Thus I try not to ascribe centrality to my own cultural vantage point but to validate, instead, the worth of each person's experience. The goal is to foster an open and inclusive environment, one that invites everybody to reveal insights derived from his or her special way of seeing.

I don't, however, "volunteer" the expertise of students from different cultures. No single person can reasonably be expected to speak for a group, nor should anybody be expected to express an individual perspective that depends upon group membership. People of color must especially grow tired, I think, of repeatedly explaining themselves to whites. (I wouldn't like being asked for "a white person's viewpoint.") When a student does choose to share an insider's perspective, I appreciate the contribution as a gift.

> When a student does choose to share an insider's perspective, I appreciate the contribution as a gift.

Two such gifts once came during a discussion of Anzia Yezierska's Bread Givers, part of a course called "Images of Working-Class Women." The most exciting interchanges were initiated by two of the students: a Jewish woman who was moved deeply by the novel as a story of Jews in the diaspora; a Puerto Rican student who saw mirrored in the protagonist's struggle the student's own painful passage through the process of Americanization. I had understood those levels of meaning, in a scholarly way, but with the outsider's necessarily partial sight. Those women, in contrast, gave compelling accounts from inside their experiences. Perhaps, in part, humility led to receipt of those gifts.

Humility also helped, I think, when students in a different class read, in translation, Julia DeBurgos's "Rio Grande de Loiza." I decided at the last minute to have them look also at a poem in some respects similar, Miguel Hernandez's "Mediterraneo". Unable to quickly locate "Mediterraneo" in English but unwilling to miss the chance to compare the female and male, Puerto Rican and Spanish perspectives, I settled for a translation of my own. Naturally I thought it only fair--to both poet and students--to let the students know of my shaky status as a translator.

A Dominican student pointed out problems in the translation and also gave a wonderfully detailed explanation of the shades of meaning which emanate from the phrase, "recodo del camino." His comments not only enlarged his classmates' understanding of the poem but also led to discussion of the slipperiness of language generally and the difficulties all translators must confront. Students began to realize, I think, that reading a translation is never quite the same as reading the original. And I like also to believe my opening remark--"This can be but a pale shadow of what Hernandez created"--made it easier for the student to speak.

Alongside my knowledge of Indian culture, my skills as a translator shine. So an even larger dose of humility is in order when I introduce poems from India that share common themes with some of the Western works I teach. Before we begin to explore the poems, I remind students of allusions in some of the Western texts to Greek and

(Continued on page 10)

Calculators: What They Can and Can't do in the Classroom

Luis Moreno, Mathematics Department

Phylum: machine. Order: electronic device. Family: computer. Genus: calculator. Species: various ones. In the last 20 years, calculators have invaded our desks, bookbags and classrooms and have staked out permanent territories there. What should their role be in the curriculum, particularly in mathematics? I would direct the reader who feels immune to the progress of these machines by virtue of his/her discipline to the last paragraph, for the difficulties and advantages that calculators present to mathematics now will eventually be felt by all educators.

The National Council of Teachers of Mathematics has for many years stated that calculators should be deeply enmeshed within the teaching of mathematics, apparently with great change in methodology and content.

The advantages seem evident: the curriculum would never emphasize mind-numbing repetitive calculations at any level. Students would not be given a page of long division problems in fifth grade (enjoyable memories, anyone?), nor asked to find the inverse of a 4-by-4 matrix by hand in 14th grade. Few people do such things by hand in practice these days! Furthermore, a person may not gain much "number sense" -- numeracy is the general modern term -- after striving through eight years of arithmetic. The speed and accuracy with a calculator can take a square root, graph a function, or find the future value of an investment should change mathematics learning from a procedure-oriented discipline to a discovery -oriented thinking process, leaving the minutiae to the machine.

The NCTM's position is clearly one of aspiration and leadership, and much of it is in some cases true. I certainly won't return to logarithm tables, and I rarely use a slide rule. But consider that the eminent mathematician Paul Halmos recently said, "...I am still in favor of the multiplication table being drummed into innocent heads...together with some of the elementary...techniques of estimating orders of magnitude..." It seems that some problems refuse to be nails even though we have discovered the hammer.

> A cocksure student early this semester told me that this course was unnecessary since "I'll always have a calculator."

MAT-090 is taught without a calculator assistance, for various reasons. A cocksure student early this semester told me that this course was unnecessary since "I'll always have a calculator." I suddenly had a vision of a keypad subcutaneously implanted somewhere in the arm, numerals tattooed in gothic.... But even if we always do have a calculator handy, some of the procedures are so fundamental that all should know how to perform them if only because the very procedure enhances the meaning of the concept. Fractions are more meaningful if one understands the procedure for adding them.

Moreover, some problems can be done better without a calculator, but only if the mathematical concept is learned. For example, if gas costs \$1.25 per gallon, how many gallons does one get for one dollar? We can think, "\$1.25 is \$5/4 per gallon, so we get 4/5 gallon per dollar," leaving the calculator aficionado in the dust! Hopefully after a student in MAT 090 (or in elementary school)learns these and many such concepts not illuminated by a calculator, this devise can then be used as an aid not a crutch.

> Other shortcomings arise later if a calculator is not put in its proper place.

Other shortcomings arise later if a calculator is not put in its proper place. Consider the tangent of 30 degrees. A calculator dutifully gives 0.577350269 and instantly drops a student into an uncountable vastness of irrational numbers. This has little meaning if not buttressed by theory. But realizing that $\tan 30^\circ = 1/\sqrt{3}$ gives the student far more insight than a calculator can muster.

In order to avoid all of this an ideal can be imagined: what a calculator model "can do" should be a subset of what a student is capable of doing at a given point in his/her training (given enough time and patience!). For example, an algebra student should have a simple +, -, x, ÷, ,calculator as an aid, assuming that prior to this, the arithmetic algorithms for these operations were truly learned via paper, pencil, and thought. At a higher level, a calculus student would use a graphics calculator more knowledgeably if he/she were able to sketch $|y| = \sin x$ and $y = [t]\,dt$, neither of which graphics calculators can directly do.

In reality, calculator "sophistication" takes giant leaps from one species to the next: basic, scientific, programmable, graphics/programmable, and supercalculator. But learning is a smooth gradual process. Thus, a calculator's capabilities often exceed a student's abilities: "I don't even know what half of these keys are for!" As the student progresses through courses, the calculators capabilities should become more fully realized.

But what occurs is a disconnection between the calculator's potential as a learning aid and the process of learning mathematics. This is seen not in the overuse but in the underuse of the device's capabilities by many students. At the algebra level, students rarely use the memory feature for storing intermediate results. In calculus,students rarely use the programming capacity. In

(Continued on page 9)

Pronouns and Sexism

Richard Stoner, English

You are marking a student paper and notice the following sentence: "A driver with a poorly tuned engine contributes their share to polluting the air through needless emissions." What strikes you first is the use of their. You circle it and write along the margin that their is plural and driver is singular; therefore, the possessive pronoun should also be singular. So far so good, but now what you do suggest to replace their: his, her, his or her, his/her, (s)his, on's, un's, s/his, one's, the driver's, each's?

In recent years this choice has become fraught with political implications for the writer, the reader, and especially for the writing instructor. Traditional handbooks direct that the masculine pronoun should be used when the gender of the antecedent is not known. However, many, who consider language as an act of political definition, argue that to use his (or any form of the masculine pronoun) is to assume that the male is the more probable reader particularly for scholarly writing. This "sexist" assumption can rapidly raise waves in the new political seas that college instructors need to navigate.

Recent handbooks, however, are not life-rafts. Each of the choices in the first paragraph's list has been suggested by at least one handbook to replace his or him. Three respected handbooks on American English usage make rather startlingly different suggestions on this pronoun problem. Roy Cooperud in his American Usage and Style (1980), pronounces that:

> "He or she" (and in other circumstances, the other pairs [his or her]) is not only clumsy but unnecessary. It is a well-established convention that the masculine form alone is taken as applying to both sexes. The plural pronoun [their] is commonly used in speech but is questionable in writing (176).

Male pronouns are supposedly the hardest form of sexist language to overcome.

Not surprisingly, Rosalie Maggio advises the opposite in The Nonsexist Word Finder (1988):

> Male pronouns are supposedly the hardest form of sexist language to overcome. Purists insist that "he, his" and "him" are indispensable when a person in question is unidentified or archetypal. In apocalyptic terms, they [one assumes male writers such as Cooperud here] warn that non-sexist alternatives are ostentatious and politicized. (201).

Ms. Maggio then offers several ways to avoid sexist pronouns in writing. She lists the following options to fit appropriate circumstances: 1) use he or she; 2) use the first person I; 3) use the you address: 4) use a noun or a synonym instead of a pronoun; 5) use who, and 6) use their for the singular. After all, according to Ms. Maggio, such medieval writers as Chaucer used their as an indefinite pronoun extensively even when referring to a singular antecedent. Constance Gefvert agrees with Ms. Maggio and in her handbook, The Confident Writer, develops an explanation, based on language history, for using their to represent an antecedent of undetermined gender and number.

However, the editors of Webster's Dictionary of English Usage (1989) do not resort to reviving past usage as Ms. Maggio and Ms. Gefvert do; they simply supply a list of newly minted "epicene pronouns" to replace the politically offensive he. These include: ne, nis, nim, hiser, thon, en, unus, talis, ir, iro, im, ons, he'er, shis, heris, co, cos, tey, ter, tem, chis, che, chim, and chimself. Politically concerned teachers and journalists have created these neologisms over the years and the Webster's editors have garnered them from articles in language journals. Webster's does not indicate how successfully these words have entered into the language. These three texts should illustrate how handbooks have probably confused more than helped someone wishing to use pronouns in a politically correct way.

If handbooks are of little help, then how do the major publications handle this sensitive issue?

If handbooks are of little help, then how do the major publications handle this sensitive issue? What advice do such diverse and popular publications as the New York Times, Coin World and New Yorker, give their reporters on non-sexist language and pronoun use? A review of eight stylebooks, gathered from a survey of twenty-six magazines and newspapers, has yielded the following information:

ABA Journal (main publication of the American Bar Association): The ABA Journal does try to avoid sexist language by using neutral words where possible (such as "mail carrier" instead of "postman") and using plural pronouns instead of singular (such as "they" instead of "he"). However, if we must use a singular pronoun we generally use "he" instead of "he or she." Coined words such as "chairperson or spokesperson" should not be used.

Christian Science Monitor Style Guide: Avoid gender specific terms in general reference to activities or roles that are appropriate for either sex, but don't go to extremes. Don't say "A 12-man board," unless the board is in fact all-male and this is pertinent; "A 12-member board" serves...Let idioms serve e.g. Man-made...Avoid "spokespersons" or "congresspersons"; "spokesmen", "congress-

(Continued on page 6)

Stoner (from page 5)

men", "freshmen", etc. are appropriate because they are not at root gender-oriented...As for pronouns, specify "he or she" in a situation where "he" alone is in obvious exclusion. But a plural can temper a profusion of "he or she" e.g. "Children can tell their parents"...And after a story has established that neither sex is excluded, an occasional lone "he," likewise a lone "she," is less obtrusive than a run of "he or she"...The "he" idiom may be adapted as naturally and unobjectionably as in "to each his own."

Coin World Style Manual-- Avoid overtly sexist language like "distaff." When writing about a function, write "collectors and their spouses" instead of "husbands or wives"...do not use "their" for "its" or "his."

Consumer Reports: For at least 15 years, we have been careful to use non-sexist terms... We put "he" or "she" into the plural "they." "Congressman" becomes "member of Congress."

Money: "Avoids use of "him" in reference to male and female; however we do use such gender-specific terms as 'adman' and 'adwoman' in certain cases.''

Philadelphia Inquirer Style Manual--Avoid terms that imply that everyone in a particular group or occupation is of one sex. Terms such as "mailman", "fireman", "salesman"...should be replaced with equivalents that do not imply sex: "letter carriers", "firefighters", "police officers", "salespeople"...most female designating terms should be replaced with neutral equivalents: "aviator", not "aviatrix"; "servant", not "maid." But some terms, such as "actress" and "waitress" are retained for now because they are almost universally accepted without discriminatory connotations...a few job titles that have no good neutral equivalents, such as "foreman" are retained and should be applied to both men and women. Military titles, such as "airman first class", also apply to both men and women... In references to all of humanity, terms such as man and mankind are permissible, but consideration should be given to whether a neutral equivalent such as humanity or the human race could be substituted without harming the sound of the sentence...Sentences that use he, him or his as generic singular pronouns often may be recast to avoid the masculine word--and should be recast when there is any implication of sexual stereotyping ["they" for "he" in plural form]. When such rewording is not possible, writers and editors should make an effort to say "he or she" (or "his or hers", "him or her"). But the grace and readability of a story should not be sacrificed to this consideration...When referring to hurricanes, nations, or water-craft, use the neuter pronoun except in quoted material.

Wall Street Journal Stylebook 2nd edition-- Maleness should not be presumed in constructing a sentence, but the pronoun "he" or his usually should be used when an indefinite antecedent may be male or female: A reporter attempts to protect "his" sources (Not "his or her" sources). Frequently, however, the best choice is a slight revision of the sentence: Reporters attempt to protect their sources.

Washington Post Desk-Book on Style-- If, for example, "his" is no longer acceptable as a generic possessive pronoun, as in "Everyone should have his umbrella", what should replace it? "Everyone should have their umbrella" is grammatically incorrect...This particular example has a simple solution: "Everyone should have an umbrella." But not all questions are so readily answered...Use generic terms for occupations or groups of people unless it would be awkward or artificial: alumnus, a graduate; businessman: a business executive or business manager.

The remainder of responding publications either did not submit a stylebook for this survey or did not have a formal stylebook for their editors and reporters, but used one or more of the standard handbooks on usage. A list of handbooks follows this article.

> Language, even in its apparently most simple form, must be used carefully and with thought.

What remains clear is that there is no one answer to the apparently simple question of what to use in place of "their". Language in America reflects its users and their concerns, as simple or complicated as they may be. This is the most valuable lesson that an instructor can transmit to the student writer: Language, even in its apparently most simple form, must be used carefully and with thought. Regardless of what pronoun the writer chooses, each writer should realize that such a choice may convey meanings far beyond the original intent.

Handbooks Used by Publications Surveyed:
(Call numbers after the handbook title indicate location in BCC library.)

American Usage and Style, The Consensus: REF PE1460.C648
AP Stylebook
Chicago Manual of Style
Fowler's Modern English
Government Printing Office Style Manual
Modern American Usage
New York Times Style Manual
The Careful Writer: A Modern Guide to English Usage: REF PE1460.WH25.1989
The Dictionary of Contemporary American Usage: REF PE2835.E84
The Nonsexist Word Finder: A Guide to Gender Free Usage: REF PE1689.M23

(Continued on page 9)

Calculators - Giving All a Fair Disadvantage

Frank Plunkett, Mechanical Department

In the mid 1970's a revolution in computing took place which had nothing to do with what were considered computers at that time. While most students in the engineering fields were easily recognized by the foot long leather cases that contained their slide rules (contrary to legend rather few students actually used the belt loops), a few of the more affluent began carrying shorter, fatter cases housing a new gizmo- the electronic calculator. The first models seen in the halls of the technical institutions were not made by Keuffel-Esser, a recognized name in slide rules, but by another hyphenated outfit by the name of Hewlett-Packard. Now one of their little beauties could be had for something over four hundred dollars which at the time was a lot of money. Most students' cars did not cost that much. So for a while they were a novelty, but not for long. Competitors came out of the woodwork, prices came down, and calculators became the new weapon of choice. Times got pretty bad for the slide rule companies.

The transition from slide rule to calculators took place roughly within two years, and a curious time it was. The fact that the calculator provided its user with a distinct computational speed advantage was quickly recognized, and their use during tests was banned by many professors. It was only fair. Imagine attempting to determine the standard deviation of fifty data points without the use of a calculator; forget it, it's impossible. So for a while the slide rule user was a protected species. It didn't help; they are now extinct.

Today students would no more consider adding a column of numbers without a calculator than would think of tying their shoes. They have all used calculators in high school, and some in grammar school (or is it K through 8?). So when the new freshpeople walk into college in the fall most already own a calculator, and it has become almost unnecessary to include calculators on the list of required supplies for a course. They are as commonplace as Dockers™.

... the variety of calculators brought to the college classroom is as wide as the skill in their use.

As anyone who has introduced students to statistical computations knows, the variety of calculators brought to the college classroom is as wide as the skill in their use. Now the question is not so much whether calculators pose an unfair advantage, but whether some calculators provide greater advantage than others. At least such is the case in courses where computation plays a good example. Although it is rare now to find a calculator without statistical functions they do exist, and any student owning one is at a big disadvantage when it comes to determining statistical parameters for a large number of data.

Another feature that has the potential for providing unfair advantage is programmability. Any student with a programmable calculator, and a PhD in User's Manuals, can install a formula, and by plugging in the right numbers get a correct result. A standard practice on the part of instructors is to require that solutions to test problems be completely developed with formulas being shown both symbolically, and with the proper numbers installed. This does make tests more fair, but the more powerful calculators still allow their owners to get a second opinion which at the very least a psychological benefit.

It is clear that all calculators are not created equal with respect to both power and price. More money buys more computing power, and some students have and/or spend more money than others. What can be done to give all students the same chance on tests and projects involving computations?

This supports the argument that requiring a particular calculator would not be an undue burden on the students.

At BCC an informal poll of the Mechanical Engineering Technology seniors revealed that most purchased new calculators upon entering college. This supports the argument that requiring a particular calculator would not be an undue burden on the students. In fact, it might save some the cost of purchasing another, more powerful, model during their college years. Additional benefits would also be realized.

Instructors could easily answer questions concerning the operation of particular functions, and the fact that a student lost the manual the day after purchasing would not pose serious difficulty. If the calculator is programmable, and if the instructor also owns one, programs could be developed for or by the class. Students would quickly see the benefit of a program for repetitive calculations and "what-if" studies.

At the present time none of the technologies at BCC requires a specific calculator, but the topic is being actively discussed. Different programs have slightly different needs, but, considering the variety of models on the market, fulfilling them will not be difficult. The personal preferences of instructors (RPN vs. algebraic entry, etc.) will demand compromise, but even this is not impossible. And if the philosophical question of forced conformity arises, it may be pointed out that there is still the choice between 0.5 mm and 0.7 mm pencils.

Calculators are generally taken for granted by stu-

(Continued on page 10)

Work it Without the Circuits: Diminishing the Role of Computers in the Classroom

Tracy Tyrrell, Student

We exist in the age of computers. There are few that would disagree that computers are the essential aspect, if not the axis around which our entire society revolves. The present goals of humans are: faster, better, and more accurate. We have reached the point where "PC" is a household acronym and one can purchase computer systems that can be held in the palm of the hand. Technology is replacing the non-technological aspects of the world we live in by leaps and bounds, and in vast dimensions and diversity. Witness the number of automatic bank tellers, robotic assembly lines and on-line databases. How does this paradigm fit into the boundaries of education? What role do computers and technology have in the classroom? Is the mainstreaming of computers into our school's curriculum the catalyst the students need for future progress, or have they become crutches for the students, resulting only in hindering their true academic potential?

Before deciding their roles, several questions should be considered and all aspects of the situation must be taken into account. It's good to attempt to pinpoint our basis of learning. Where does the knowledge stem from? Our capacity for thought and information can be thought of as a product coming from two sources: active learning and passive learning. There is no doubt that computers contribute as an active source of learning by allowing experience in hands-on work. But, when does the use of computers leave the realm of knowledge and become a trap in which students are left aimlessly pushing buttons? Have we completely abandoned the previous role of computers as a means to an end and allowed them to convert their role to an end to the means?

Have we completely abandoned the previous role of computers as a means to an end and allowed them to convert their role to an end to the means?

Perhaps even greater emphasis should be placed on the argument of computers and theory. When a student uses one of the trigonometric functions on his calculator, does he realize the theory behind it? Is he taking technology for granted and allowing the computers to think for him? Have we lost sight of the idea of man over machine? Only humans have the capacity to think. The student needs to realize the computer only runs on what the programmer has told it to do. Without theory, technology cannot exist. As students, our primary goal should be to learn the theories and concepts behind the formulas. Hiding behind a wall of ignorance will only create stagnation, both in the student's academic potential and in the future of our technological society.

The question, however, cannot be answered as simply as this. In education, the subjects and goals involved are far too diversified to be answered with a yes or no. Witness the extremes. Should a Physics student gathering her data be made to compute standard deviation by hand or should she be allowed the use of a computer software program to do the job for her? If the intent of the lab is for the student to figure out the velocity, then the computer can be used as a tool to efficiently handle the tedious calculations and avoid obfuscating the main goal. Likewise, should a Chemistry student be asked to perform repeated distillations or be allowed to use a gas chromatograph to determine the constituents of a mixture? Should a second year Calculus student be allowed to use a graphing calculator on an exam which covers the graphing of functions?

In order to decide the place for computers, we must observe each situation individually. We must fully examine what the goals of both the course and the professor are. Taking the problem out of its individual context will not give us the answer.

We are now finding more and more educational institutions, from pre-kindergarten to collegiate level, using computers as an integral part of the learning experience. By saying that the emphasis should be placed on theory, I am in no way condemning the use of computers. Students should be aware of the importance of, and our dependency on, computers in society. They must realize that computers will be central to, or at least involved in, whatever vocation they choose. Computers and calculators should be presented to the students under supervision of a professor with the knowledge that they are used only as a tool.

Computers and calculators should be presented to the students under supervision of a professor with the knowledge that they are used only as a tool.

Computers should be introduced as a supplement to the class. The visual dynamism of computer software (which can be easily geared for young children) should be taken advantage of. The use of computers for experiments, exams, and quizzes should be a decision based on what the goal of the learning experience is, the time factor for the project, the degree of knowledge of the student on related topics, concepts, and theories, and an objective look must be taken to decide whether the computer's use would be an enhancement for the student or would allow the student the easy way out. If we view computers as the key to our future, we must remember that we can only excel if we control, fully understand, and expand on the mechanisms behind the machine.

Butchko (from page 1)

Employment opportunities for ET graduates in 1968 were very good - especially for BTCC graduates. Having co-oped in industry in Rochester and Owego and possessing skills learned in high school and college, industry seemed the route to take. At this point, Professor Beers related a job opening at the college (BTCC) in instructional television. My ears perked - could I be on the same staff as those whom I respected as professors? Could I live on the meager salary offered? Obviously, the answer was yes!

In the years that followed I found the collegiate atmosphere to be very good for me in a maturing way. My initial position (assistant instructor) was fulfilling for a while, but the teaching environment was catchy - I realized that to grow within this environment I must become better educated, and hence completed my BS and permanent teaching certificate in 1973. I was hooked on education and teaching. The Hippocratic oath DID mean something! Assisting the professional staff for many years was not enough. I therefore developed and taught a course in audio/visual production.

> ... the teaching environment was catchy ...

In order to grow at BCC or move on, a higher degree was necessary. My master's in education was achieved in 1984. Teaching, by this time, had become a pleasant part of my life. When our communications/media arts program started in 1986, a full-time teaching responsibility became reality. No more balancing the technical-college responsibilities with the teaching responsibilities. Many of these technical tasks were usurped by student/committee demands which required both time and sensitivity. When time became scarce and the easy way out was not to be involved I thought back to the time spent on me by many dedicated professors, guiding me through the educational ranks.

I think often of Professor Beers as one I try to emulate because of his intense dedication to his students and his field of study. Also, if my father had become a teacher, he would've possessed the traits of Professor Beers - many of which I pride myself on having today: a non-conformist personality, compassion, dedication, a constant need to know more, and love of life - every day! Teaching for me is fulfilling, demanding, creativity-promoting, interactive, and a major fun part of my life.

Moreno (from page 4)

part, I think this is because some calculator manuals are the worst examples of technical writing extant. But can this also be due to not having enough previous mathematical skills at hand to understand the manual? Most likely yes, especially for the students barely keeping afloat in the course the calculator is intended to help.

The resolution to such problems doesn't lie in drastically revamping methodology and content. The 19th century mathematician Joseph Fourier stated, "Mathematics compares the most diverse phenomena and discovers the secret analogies which unite them." Calculators, on the other hand, are designed to give efficient answers of one form or another. Their wisest use is therefore to exploit their efficiency so as to clarify the analogies Fourier speaks of. But the theoretical content we teach, i.e., the mathematics that is used to discover the analogies, cannot be diluted to suit this new technology.

> The processor's fuzzy logic will be able to understand the meaning of sentences, and therefore suggest alternative flows of ideas.

The new technology is conquering new niches. Let's consider a neighboring genus in our electronic taxonomy: the word processor.

Today, it can format a paper, spell - check it, etc.. In 20 years, it will evolve into a laptop syntax processor. With this device, a student will be able to write five pages of English in it's loose, spoken form, and choose among several emulations on a menu: technical, literary, business, (officialese?) etc.... Then he/she will feed the manuscript into the intelligent fax at the back of the machine, and receive a "first draft" printout in the chosen form. If this does not seem good enough, our student need only to reinsert the paper, and obtain a "second draft". The processor's fuzzy logic will be able to understand the meaning of sentences, and therefore suggest alternative flows of ideas. If the student is lazy or pressed for time, a default order of ideas may be prescribed. The paper handed in, and although it is clearly written, the professor will see 10% student and 90% syntax processor. The paper must be redone, this time without the technological protheses, and the student retorts, "Why do I have to learn to write like this? Everyone can understand this pretty well, and I'll always have a syntax processor."

Stoner (from page 6)

Webster's Dictionary of English Usage: REF PE1460.WH25.1989

Wiley Guidelines on Sexism in Language

Words into Type

Aside

The following article is a summary of The Case for Calculators: A New Perspective on Math Teaching and Testing (College Board Review, No. 160, Summer, 1991),three articles combined to present a case for including (programmable) calculators in the classroom.

Joan Countryman and Elizabeth Wilson's article, Living in a Mathematical World, takes the viewpoint that a calculator is a tool which can be used to explore more calculation intensive ideas. It is their view that a calculator cannot replace the interpretation, organization, data collection and solving skills necessary to a successful attempt at a problem's solution.

Anthony Ralston's contribution, Calculators for Teaching and Testing Mathematics, starts with the author's view on the benefits of calculator use. Included in his list is the idea that "students will learn from the beginning of their studies that mathematics is an experimental, as well as an exact, science. This lesson is of major importance in the use of mathematics generally in our ever more technological society."

He then focuses on the problems with current standardized tests and how they have to be rewritten if calculators are to be infused appropriately. He maintains there are very few good calculator questions on modern tests, and we need to research and correct this deficiency before attempting to implement an across the board calculator policy.

The third article, Calculators and the SAT, by Gretchen W. Rizol, counterpoints the first two articles. She relates the current and future plans for introducing new calculator based versions of the SAT, PSAT, and Mathematics Achievement Tests prior to 1994. She then briefly presents the results of several studies showing that calculator usage on current exams have resulted in mixed performances.

At the end she discusses several details of implementation including: fairness, calculator functionality, and calculator specific training.

Additional references are given.

Williams (from page 3)

Roman myths, to Shakespeare, to folk tales from this country and elsewhere, to the Bible. I ask them to imagine having read the works from the U.S. and Europe divorced from their literary and historical contexts. Then I emphasize how little I know about the Hindu religion and other aspects of Indian culture and ask how the students think the deficiency would affect my understanding of the poems. When we do finally talk about the poems themselves, students will be ready, I hope, both to identify commonalities between the Eastern and Western works and to appreciate the accessible glimpses of the Indian poems' "different" content.

Before the class ends, I remind the students of what we are missing. "If we all went to India for a year to immerse ourselves in Indian culture, then do you think we could read the poems as Indians would?"

During semesters when the students and I have done a fairly good job together, they know better.

Works Cited

Foreman, Gabrielle. "The Racism of Postmodernism." The Women's Review of Books 8.12 (Sept. 1991): 12.

Freire, Paolo. The Pedagogy of the Oppressed. New York: The Continuum Publishing Corp., 1988.

Plunkett (from page 7)

dents and instructors alike; their potential as an educational tool is largely ignored. However, when departments institute a requirement for a particular calculator, and integrate its use within their programs, the lights will come on. At that point the question will be "Why did we wait so long?"

Coming Next Issue

The next issue will be out on December 15 and will include articles on student athletics at BCC. If you would like to share your thoughts with your colleagues, please contact the editor as stated below.

Articles are usually 500 words, but may be longer or shorter. Please submit a typed, double spaced copy along with an electronic copy on disk (ASCII format) or via electronic mail. Articles are due no later than November 26, 1991.

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Why I Teach

Bob Newcomb, Business

I entered this profession atypically: I couldn't find another job. Following service in the second great war and the attainment of an undergraduate degree, I went to work for a Fortune 500 company; after three years in a seeming meaningless capacity I resigned.

Fortunately, I obtained a better position in a lesser-known company, albeit the only major employer in a small community. Twelve years later I had the impressive title of "Contract Administrator;" soon thereafter, however, my position was abolished because of corporate restructuring - what today is known as preparation for a takeover. (Yes, they were taken.)

A placement service allowed me to be considered by two firms in Rochester and Buffalo, each a considerable distance from where I lived in Watertown. Coincidentally, as things are wont to happen, my mother-in-law suffered radical surgery, and the prognosis was negative. My wife, understandably, refused to move.

Using most of our accumulated savings, I purchased a retail business downtown, which provided marginal earnings for three years. Then, urban renewal interests razed the downtown shopping district, and I was back on the street.

I had always been interested in teaching but balked at the monetary aspect. No problem now, though, as I had zero earnings. I decided to obtain a graduate degree and certification, at the expense of the few remaining assets.

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Why I Teach

Denise Abrams, Physical Therapist Assistant Program

Why do I teach? What a difficult question. I teach because I love it. I hadn't really put my answer into concrete terms before. Teaching has many benefits, such as summers off, but it has its constraints as well. I could find other jobs in my field that offer these benefits without constraints, so that's not the reason. I do come from a long line of teachers in my family. My grandmother is one of the best in my opinion, so there is a certain "blood" connection if you will. After contemplation I could come up with many different reasons.

I think the most important reason is the mutual rewards teaching brings. I teach because of the look on the face of my students. I really began teaching a long time ago when I was in high school. I taught religious instruction to six-year-olds. That's probably when I caught the bug. Seeing the childrens' eyes light up when they truly understood a concept was inspiring. Their eyes grew even brighter when I congratulated them for their good work. I felt excited for them and proud that I could make them feel so good about themselves. The rewards are thus mutual.

> Seeing the childrens' eyes light up when they truly understood a concept was inspiring.

As I thought more on the subject of why I teach, I thought why hadn't I gone into teaching as a profession in the first place. In high school I had decided I wanted to help people. I felt medicine was extremely interesting and followed that avenue. I found Physical Therapy exciting, challenging and extremely important to the successful rehabilitation of certain patients. Somehow I always wanted to do a bit more. Physical Therapy required me to continually review and add to my education. I truly loved this aspect of the job. Continuing education is extremely valuable and stimulating. Teaching has given me the added luxury to continue learning daily. I learn from my students, from fellow faculty members and from a variety of courses I can attend. It seems in this setting the educational experience has no bounds.

I again had the pleasure of teaching while working as a Physical Therapist. In the Physical Therapy programs

(Continued on page 6)

Newcomb (from page 1)

A sage advisor at SUNY-Potsdam suggested that I should instead apply for a position in a community college, considering my background and age (38). I wrote to the President of each institution and received three job offers within a week, presumably because the month was August.

I accepted the lowest monetary offer and rank because of the friendly demeanor of President Tyrrell and Chairman Kalbaugh. I entered the classroom with trepidation, having no training in educational techniques, deciding to teach by - or to - the book. That was a mistake I soon realized, because there's a limit to theory; practicum must at times show the way.

The first classroom observation by the Chair resulted in a mostly positive report. The only criticism which I recall was erasing the chalkboard horizontally instead of vertically. (If only I had had courses in education!) I was buoyed by a comment by Evelyn Katuzak, Secretarial Chair, that her students liked my course in business communication, despite wrong-way erasures.

> ... I became increasingly aware of my role as sorter of theory and practicality.

I was further elated when a marketing class gave me a pen and pencil set at the end of the quarter, probably a reward for leniency. As the quarters and semesters progressed, I became increasingly aware of my role as sorter of theory and practicality. I bore too many real life scars to teach textbook nirvana and tried to tell young people how academic philosophies apply in the workplace.

It seems to me that instructors in community colleges bear this special responsibility. My evening communications students, especially, tell me that they agree with my recommendations, but their bosses use stilted, dated methods of writing. I urge them to persevere on the basis that effective communication will eventually take hold by osmosis.

None of the foregoing comments dismiss the security that tenure affords. Irrespective of that aegis, however, is the ongoing commitment of a hooked instructor to present a realistic mix of theory and reality.

A greater hook in my case was the feeling of doing something important, meaningful. It's nice to sit on the patio on a June evening and reflect on the sparkle which I perceived in some young eyes during the academic year.

I'd like to think I had a part in the careers of Tim Grippen and Tom Libous, two sparklers. There also are the several colleagues, former students, who carry on as I leave this beloved campus. The Business Division is in good hands.

I'm remiss in being unable to name or cite accurately the person who said: the effects of teaching are infinite; one cannot know what they may entail. Ah, so!

Why I Teach

John Bunnell, Business

I get up in the morning...I don't have to dread it. I'm doing something I love; I can't see myself doing anything else. But, I don't think I really considered teaching until I was a junior in college. Up to that point, I had considered all the usual careers that growing up in the fifties and sixties had brought.

Looking back it seems like most of my strong role models when I was growing up were teachers. I can see them influencing me a lot more than I felt at the time. I'm not sure that I believe in callings, but I do know that everything that I do in my job is very compatible with my nature and my world.

> To me, a teacher is someone who cares about people and their future ...

To me, a teacher is someone who cares about people and their future and I've enjoyed working with people; I see teaching as a way to help people to understand things that they didn't understand before....to help people better themselves. People generally appreciate what you do for them and just letting them know that you care about them means a lot to them.

All of us who enjoy teaching can offer a long list of reasons why we do it. For me, it boils down to a Christmas card.

About ten years ago while teaching a section of Marketing, I encountered an unusually apathetic student. He appeared to be a little older than most of the others in the class. He never missed a class, but refused to participate in the discussions, didn't turn in any written assignments and scored exceptionally low on the first two tests. Assignments that seemed to generate enthusiasm with the others generated no response from him. He didn't even seem to be with us at times. By midterm, I had reconciled myself to having lost this one, when one afternoon he appeared at my office door. "Can I talk to you?" "Sure," I said. At that he began to spill out his life's troubles.

(Continued on page 6)

The Department of Athletics and the Student Athlete Within the College Community

Dan Minch, Athletic Director

The function of the Athletic Department is to serve as an integral part of the institution's total academic and student activities program. The athletic program should contribute to the overall educational experience of the student through the integration of student/athletes with other students. It should provide for maximum personal, physical and mental development through a well-rounded schedule of intercollegiate sports. The program should be both representative and competitive within the regional and national conferences that it competes.

The student/athlete should recognize that he or she is first and foremost a student. The athlete should attend all scheduled classes, unless excused by the instructor, always strive towards the best possible grades, meet all college appointments and obligations promptly and regularly on the field and in the classroom. The student/athlete should be mindful that he/she is only part of the entire educational program and must not put themselves ahead of or above the other college programs.

The college community should acknowledge that the student/athlete is striving to meet certain obligations beyond the classroom. If he or she is fulfilling the educational obligation, then the college community should exert every effort to support them educationally and athletically. The college community needs to realize that the athletic teams act as a "window" from which the outside community view the college. Any support from the college community is greatly appreciated by the student/athlete and the Athletic Department. ◻

The Student Athelete

Kerry McCoy, Student

As a second-year goal keeper for the Broome Community College soccer team I know the importance of loyalty, dedication, and perseverance. As a 1990 graduate of Seton Catholic Central High School and present owner of a 3.03, I know the importance of good grades, study habits and a positive work ethic. As a student at Broome, I pride myself on my ability to keep the two balanced. Neither one takes up a majority of my time.

> I have been extremely lucky to have teachers who have been accommodating to my needs as a student athlete.

In my college experience here, I have been extremely lucky to have teachers who have been accommodating to my needs as a student athlete. When I say accommodating, I do not mean that I received special treatment which was not accessible to the other students in my classes. I was not given any extra benefits because I was a student athlete. On the contrary, it was necessary for me to sacrifice for these accommodations.

Whether it meant getting up early in order to take a test earlier in the day or week because I had a game which conflicted with the test time, participating in extra class activities (a class topic-oriented play, in one instance), or missing part of practice in order to get important notes for a certain class, I would do it in order to keep up my school work. After all, I'm attending college to attain a high grade point average not a low goals against average, and I would not expect any favors or leeway to be given to me simply because I have a desire to play a sport while attending college.

(Continued on page 4)

The Student Athelete

Dave Michalak, Mathematics, Baseball Coach

The Broome Community College Baseball team starts each season with an informational team meeting. During the course of the meeting one of the athletes always asks: "What happens when we have a class and a game scheduled at the same time?" Unfortunately, I'm unable to give them a concrete answer since the college does not have a written policy addressing this issue. Apparently there was a practice years ago by which the Athletic Director sent a list of names to each department on campus informing them of athletes absent from class on the days when they would be attending athletic contests. This procedure is no longer in effect, so when a conflict arises for the athletes today, they are "officially" left on their own. Since the college is sponsoring an intercollegiate athletic program and providing resources, funding, and coaches, it's ironic that no provision has been made to inform the faculty why these individuals are absent from classes.

> ... a better approach would be to establish some guidelines and incorporate them into the college's class attendance policy.

In my opinion, a better approach would be to establish some guidelines and incorporate them into the college's class attendance policy. This would apply to all students participating in athletics or any other college sponsored program where a legitimate absence from class can be recognized. Ithaca College, for example, clearly states its policy and procedure in the student handbook, undergraduate catalog, coach's manual, and in the athlete's general information brochure. It's understood that students are to be excused from classes when they are in

(Continued on page 4)

McCoy (from page 3)

Besides an education, though, college life also offers many diversified, extra-curricular activities for its students to participate in. One of these is athletics. I consider myself lucky to attend such an athletic college as Broome. A great deal of the students attending Broome participate in the athletic program in some way. Many go to the games played by the various Broome sports teams. Others are members of the intramural soccer, volleyball, or basketball teams. A select few play varsity sports for Broome. Each of these activities allows the student a chance to join in social happenings around campus and improve their physical well-being at the same time.

> I am proud to be able to say that I am a Broome Hornet ...

I am proud to be able to say that I am a Broome Hornet because it has given me a chance to participate in a sport that I love and, at the same time, meet new people. Being a team member means that you will always have someone to back you up, and with that comes the obligation you have to the others on the team. It means you don't have to be by yourself in the tough times at school or when dealing with diversities which present themselves for the first time at college.

The behavior of a student athlete on campus is considered a reflection of the coach and how he conducts his team. That student's behavior off campus is considered a reflection on the school and the degree to which it endows a sense of pride and respect for the community. This is true for any institution, be it the institution of education one attends, a place of employment, or place of worship. All possess a certain code of behavior which are expected to be followed by members of that assemblage or community.

> The student athlete is a role model for those who wish to play sports in college.

I believe that a student athlete holds such a responsibility and that these individuals should consider his or her actions before following through with them. They should decide whether or not the actions will hurt the image, honor, or respectability of the school. The student athlete is a role model for those who wish to play sports in college. If those future stars watch as a college sports star gets through college by cheating, buying off professors, or taking the easy course in any way, that kid will likely form an opinion that that is what college athletics is all about: get by at any cost as long as you can play ball, wrestle, swim, etc. They will also get the impression that it is OK to do so, and that it is accepted in the academic society that is college.

I feel that too much of college athletics, especially those events which are seen on TV is overshadowed by the knowledge that the real college superstars are going to have a future in the pros, especially basketball and football. This leads young athletes to think that they can breeze through college and can, with sports, succeed in life just like "so-and-so" or "what's-his-name." The young athlete attends college spending all his time getting in shape, working on his skills, abandoning his schoolwork, and when it comes time to try out for the team, he fails. Now what has he got? Poor grades beyond repair and a shattered sense of what he believed to be reality. It is unfortunate but these "rude awakenings" happen all too often in today's colleges. There has to be a greater effort by coaches and parents to intermix both the athletic aspect and the academics of the young athlete's workload. The leaders in our society have to show the youth that they can do both at the same time, and that it is important to do so in order to prepare for the reality that maybe their athleticism may not be able to put bread on the table.

This is the reason I feel it is important for student athletes to concentrate on their grades as well as their stats. I feel that there is a need for more Dave Robinsons, who, after graduating from the Naval Academy at Annapolis, fulfilled his two year military obligation to the Navy before signing with the San Antonio Spurs of the NBA. He truly is the ideal for all student athletes. He made sure he had a future instead of hoping for one.

Michalak (from page 3)

attendance of an official college function and that they will make all necessary advance arrangements with individual faculty members. The burden is placed directly on the athlete and it is very clear that absence from class does not mean that the athlete is excused from completing required work or from fulfilling class responsibilities.

> ... it is very clear that absence from class does not mean that the athlete is excused from completing required work or from fulfilling class responsibilities.

In an attempt to minimize the number of potential scheduling conflicts for athletes, careful advisement is needed. Spring semester athletes can make use of preregistration before the semester begins to insure that they have as many early classes as possible. Course schedules should be arranged so that heavier loading is distributed among the semesters that the athlete is not competing. Enrollment in summer courses should also be recommended as needed to help individual athletes maintain

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The Student Athlete

Scott Gustafson, Student

Often times when students leave the high school level and enter college, they do not continue participating in the sport or sports that they did in high school. Some feel that when they enter college they are going out into the real world and the only thing that matters is good grades and that sports can only interfere with their studies. Others think that college sports are so much more competitive and they are not good enough to make any kind of noticeable contribution to the team. However, I tend to disagree with these students' thinking and I encourage anyone who enjoys a sport to participate in that sport at the college level because there is so much more to gain in partaking of a sport than just competition.

> I encourage anyone who enjoys a sport to participate in that sport at the college level...

Student athletes, in my opinion, learn how to budget their time more efficiently than a regular student. I found that when I was on the golf team last spring I did not have as much free time on my hands than when I was attending school in the fall semester. This forced me to do my work as soon as I got home from the tournament that day and I had no extra time to do any of the hobbies I have. I also found myself having to do a significant portion of my work in school between classes when usually my friends and I would go to the cafeteria to get something to eat.

However, being a student athlete can also enhance one's social life. When I went to the various tournaments around New York State I met so many different people. When the match starts you are grouped with three other students from different community colleges. Since golf is such an individual sport sometimes you can get really nervous playing and it eases the pressure if you talk and joke around with the other players while you are on the course. Because of golf, I have made many friends not only from meeting new teammates, but the other students I have played with through the course of the season.

> ... if a student makes an attempt to make up the work he missed the teacher should realize that he is conscientious and allow them to make up that quiz or test.

During and after the sport season, I feel that a student athlete has a better respect for his or her school than a regular student. The student athlete realizes that when they are participating in their sport they are not only representing themselves with their play, but they are also representing their school with their attitude and their off-court behavior. This respect for the school continues even when their season is over.

The only disadvantage a student athlete has over regular students is that some of the matches or games they play are during class time and sometimes they have to miss a class or a test. However, usually you can get the class work missed from another student and you can go in and see your teacher during his or her office hours to make up the test or quiz. On an occasion though, a teacher does not think that there is any room at the collegiate level for sports and that the student should focus his attention on his grades. Consequently the teacher will not let the athlete make up a quiz or test that they missed. I'm not trying to be an advocate for special treatment, but I do feel that if a student makes an attempt to make up the work he missed the teacher should realize that he is conscientious and allow them to make up that quiz or test.

Overall, I feel that since I have been on a sporting team at the collegiate level I have become a more organized and well-rounded person and my experience has been a rewarding one. □□

Michalak (from page 4)

academic progress in their respective curriculum. A long range solution would involve the implementation of academic advisors specifically for our athletes. Ideally, this would require the creation of a full-time position designated to meet this need. A more immediate approach might be to survey campus faculty members and establish a number of those interested in advising and scheduling athletes. Because of the large numbers involved, some type of compensation could be arranged for the advisors by way of stipend or release time.

> During my twelve years of coaching baseball at BCC, it has been my experience that the faculty in general have been very cooperative in dealing with our student-athletes.

During my twelve years of coaching baseball at BCC, it has been my experience that the faculty in general have been very cooperative in dealing with our student-athletes. However, there have been some difficult situations when a viable solution of a scheduling conflict could not be reached between athlete and instructor. The decision to attend class or a scheduled game is not an easy one for athletes serious about their academic course of study. Unfortunately, the best decision is not always made by the athlete for various reasons including peer pressure from teammates.

This spring, I will attempt to let faculty members know in advance when potential scheduling conflicts might occur. Each student-athlete will have a letter stating that they are a member of the baseball team and it will include

(Continued on page 6)

Michalak (from page 5)

a listing of the weekday dates and times during the season when absence from class will be necessary. I'm hoping that this procedure will accomplish several important objectives. First, the instructor will know that a sincere effort is being made in advance to establish a mechanism by which all classwork that is missed can be made up. Faculty members can take this opportunity to impress upon the athlete the importance of not missing any additional classes beyond those that conflict during the season. Also, the athlete can be advised as to whether any other sections of the same course are being taught by their instructors along with the times and days. Developing a written contract or agreement with each student-athlete at the beginning of the semester may be an option for establishing how and when missed work can be made up. Through mutual cooperation, we can expect a by-product that reflects both motivation and the encouragement to reach full potential which is, after all, the same objective sought after in the academic realm as in the field of athletics.

Abrams (from page 1)

the students are required to complete a clinical rotation in a therapy department under the direction of a Physical Therapist employed there. I had many opportunities to be the clinical instructor. The same mutual rewards were experienced and amplified. One learns so much when trying to teach another. Now, not only were both the student and myself benefitting, but so was the patient who was involved.

When the program at BCC evolved I heard they were looking for an adjunct instructor. I decided since I loved teaching so much I would investigate expanding my horizons a bit. Then I learned the real "Truth". Teaching is extremely time consuming and difficult. The work that went into developing a course that was suitable was tremendous. I was left feeling exhausted. I didn't dwell on this however, I didn't have time! I still had to teach the course! As the semester ended I felt I had accomplished the most difficult task I had undertaken so far. It felt great! I was responsible and successful at actually educating students in my chosen field, to go forth and continue on their own paths of the future. I had a direct impact on their lives. I wanted to work full-time!

I realize now that I can help more people, and continue my education more satisfactorily through teaching. I am helping students realize their aspirations and dreams. I am also helping many more patients by sending forth well educated, enthusiastic and caring students and graduates. This is why I teach.

Bunnell (from page 2)

It seems he had recently gone through a divorce in which there was a child involved; his wife had custody. To cope, he turned to alcohol and drugs. (At this point I'm thinking that it would have been a great day to have gone home early). We hear a lot as teachers and I'm sure it's not all genuine, but this, I could tell, was.

My first response was to suggest our Counseling Center; but he was reluctant in spite of their confidentiality because there were people he and his family knew working on campus. I was out of my usual element; why couldn't he have asked a question about business? I picked up the phone and called some people I knew in the medical profession and they offered some places to turn.

> Each year at Christmas he sends a Christmas card that simply says thanks ...

To make a long story short, this student entered counseling and finished BCC. He transferred and obtained a bachelor degree, and has an excellent position and has remarried. Each year at Christmas he sends a Christmas card that simply says thanks and his signature.

That's what it's all about for me, knowing that I can make a difference. I'd like to think that I can make this difference in and out of the classroom.

This student isn't the only one to thank me for things I've done, but he will always be the one I think of first when I'm asked why I teach.

Coming Next Issue

Next month's issue will be an open forum. All readers are encouraged to send articles relating to teaching and academic issues at BCC.

The usual length for an article is 400 - 600 words, which will fill about a single column. If you have a longer article, or would like to edit a series of articles, feel free to inquire about having one or several pages of an issue reserved for you. Happy Holidays!!!

Center Stage is published monthly in cooperation with the Teaching Resources Center.

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Center Stage

A Platform for the Discussion of Teaching/Learning Ideas
Broome Community College -- Binghamton, New York 13902

Volume 2 Number 5 *January 15, 1991*

How to Divide a Candy Bar
or
What's New in Mathematics

Mort Goldberg, Mathematics

As more and more colleges examine their curricula, they recognize a growing need for Mathematics. I am not thinking of the usual user of Mathematics in Technology and Physical Science but rather in the Social Sciences.

At our campus we have anticipated this trend by revising the *Mathematics: A Liberal Art* course to include some exciting "new" topics. The section entitled "Social Choice and Decision Making" includes units dealing with different types of voting, winning coalitions, veto power, apportionment problems, etc.

We are trying to make math "anxious" students aware of the importance of Mathematics in the non-technical areas of education and the relevance it has for their lives.

Let us consider the following problem in the area of "fair division." How do we divide a candy bar "fairly" between two children? The method we all grew up with is "you break it in two and I'll choose first." This reminds me of a cute anecdote that I'll get to later. Continuing the division problem - how do we divide a candy bar among three (or more) children? While you consider this problem, I'll relate the anecdote. Two friends having just completed dinner are served two slices of pie, one notice-

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Educational Philosophy

Alan Dixon, Electrical Department

During the middle ages a university was a place where knowledge was housed. Those who knew or thought they knew gathered in these places. What was known in those times was centered with these "experts". However, the accumulated knowledge was not available to everyone. In modern times, a community college gathers experts together from the community and the resulting knowledge is available to anyone.

Here at BCC, I have found that the gathered faculty expertise is joined by an increasing base of student knowledge. Our students are a bit older now, coming from industry or life's experiences, with expertise of their own. Frequently in my classroom, what we are learning is supplemented by the experiences of my students. A day does not pass that I do not learn exciting things from my students. Often, a question leads to a different way to view some topic. Information from an industry experience is volunteered for our edification. Students bring in interesting objects for all to see from a local company. Education in my classroom is a shared experience where we learn from each other as well as from textbooks, laboratory exercises, and the experts.

As a teacher, I have become a facilitator of learning, a resource of material. My responsibility is to make the material available in new and exciting ways each day demonstrating where possible the applications of what is taught. People need to touch and feel the things we are discussing. We measure, examine, poke, feel, smell, and sometimes break. We respond to each other as this process plays out and all are enriched by the resulting enthusiasm.

So what is my philosophy? Can WordPerfect commit this to paper? My philosophy is that we are here to learn from each other, a main mission so to speak. Together we look for new knowledge, playing with our creativity. The knowledge is available to anyone, the skills we develop may last the rest of our lives.

As an Eagle Scout, I repeated many times the phrase "to help other people at all times". For me, Teaching is an ideal profession for exercising this admonition.

Teaching Resources Center Update

Alice McNeely, TRC Coordinator

Preparing for this Spring semester, I wiped the 4 month planning calendar clean, taking note of the formal events that went on at the Teaching Resource Center last semester, and surprised by their number and diversity. We had presentations from off campus on PC Solve, Retirement and Tax Shelter Annuities, Alcohol Affected Students and Multi Media Technologies. On Campus, many members of our faculty and staff contributed to the New Faculty Orientation and the information sessions on student and faculty resources. Paul O'Heron shared the Infinite Hotel, Greta Wingate prepared a very personalized introduction to Library resources, Angelo Zuccolo gave us a dramatic exposition on Acting in the Classroom, and Karen Goodman provided tips for Writing Objective Exams. In reaction to articles in *Innovative Abstracts* and *The Teaching Professor* on open-book and open-note exams several faculty met to discuss the application to their own classroom.

On the less formal side, a few faculty members discovered that The Center is an excellent place to schedule meetings. The Center provided space for such groups as the Freshman Experience Faculty, Writing Across the Curriculum Committee, Professional Development Committee, Writing Center Staff, Placement Exam Evaluators, Portfolio Committee and General Education Subcommittees. In addition to these scheduled events many faculty members found the Center to be a sanctuary from the hustle and bustle of campus life. They dropped by to use the computer, browse through the resources, find a quiet place to work or peruse the latest issue of *The Chronicle of Higher Education*. New faculty came seeking information and conversation. The Center sponsored a mentoring project for new faculty, and match 25 of the 37 new faculty members with mentors. Several coffee and conversation sessions were offered where new faculty connected with mentors to discuss a variety of topics such as problem students, availability of resources, parking, and curriculum development.

The Center staff collected information and produced and distributed pedagogical materials. The Center assisted in the production of *Center Stage*, assembled the faculty handbook, distributed the Faculty Promotion Guidelines, and collected books, videos and other materials on pedagogical issues.

The Spring Semester started early for the thirty five faculty members who came back to campus on January 9 & 10 to participate in the intensive 19 hour workshop with Jerome Jewler. I've heard numerous positive comments. We laughed, we learned and some of the people we pass in the halls became more than faces in the crowd. Some participants remarked that they were reassured that they really are good teachers and came away refreshed and renewed. Jerry demonstrated activities we could use to get acquainted with our students. We explored our teaching-learning styles and how to meet the needs of students with diverse learning styles. We examined the connection between writing and learning and considered ways to use writing in the classroom. We investigated giving and receiving criticism for professional development and some practical tips on writing peer evaluations. Most of the participants came away with some new insights into their teaching and were encouraged to try new approached in their classes. An overwhelming majority of the participants indicated that the session should be offered again for their colleagues who missed it.

> ... we can support, encourage and revitalize each other.

For me, the most exiting part of my job as coordinator of the Teaching Resource Center has been my contact with faculty members from across the campus. I have gotten to know and appreciate many exceptional people and have had the opportunity to recognize the wonderful resource this campus has in its faculty. We are so busy being teachers that we sometimes forget to refuel. It is difficult to treat ourselves to an hour "off," but we can support, encourage and revitalize each other.

Gender-Specific Pronouns and Titles

Karen Goodman, Engineering Science

In the November, 1991 issue of Center Stage, Dick Stoner discussed several possible ways to avoid gender-specific pronouns (he, her, his, hers). The lack of a neutral pronoun, such as the French 'on', is sometimes a disadvantage in English. Using "one" as a neutral pronoun seems so awkward. "You" and "they" aren't always appropriate. Why not use masculine and feminine pronouns equally when gender is unknown or unimportant to the context?

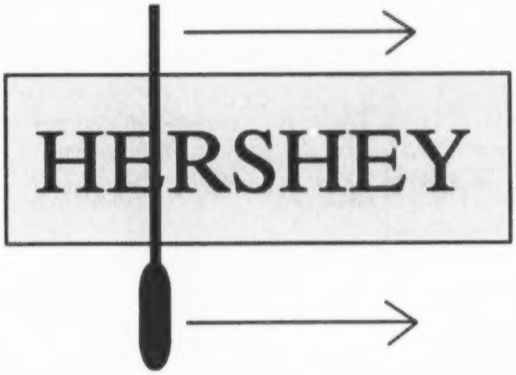
This technique is not an original one; I have recently seen or heard it used in several situations. In the Wellness Letter, a monthly publication of the University of California at Berkeley, one article may use the feminine throughout, while another uses the masculine. Illustrations use male and female figures equally when both are appropriate. Sometimes, whole issues will use the masculine or feminine. Paul Hewitt's Conceptual Physics, the text in my physics courses for health sciences curricula, often uses "he" in one paragraph and "she" in another. Photographs and figures show either females of males or both together engaging in scientific activity. This is an especially encouraging technique for a beginning science text; women see that science is not a gender-dependent process. Too often women students feel estranged from science even before they've had any experience with it.

(Continued on page 4)

Goldberg (from page 1)

ably larger than the other. One friend says, "You pick first," and so the second person chooses the larger piece. The first one then remarks, rather ruefully, "If you had let me go first, I'd have chose the smaller piece." To which the other person replies, "So don't complain, it's what you got."

Now back to the candy bar. One way is to have an impartial observer take a knife and hold it above the candy bar at the left end and move it to the right perpendicular to the long symmetry line of the candy bar.



As the knife is moved any child can shout stop and the portion to the left of the knife belongs to that child. The process continues until everyone is served. Does everyone get an equal share? Not likely, but everyone gets a "fair" share.

One of the other topics which was mentioned earlier, apportionment, is very current. The state of Montana is suing the Federal Government because they are losing one of their two seats in the House of Representatives based on the 1990 census. The problem dates back to revolutionary times when the framers of the Constitution were trying to establish the appropriate type of government and chose a bicameral legislature. The Senate, to favor the small states, received equal representation and the House, to favor larger states, received an apportionment based on population. Alexander Hamilton, Thomas Jefferson, John Q. Adams and others all proposed methods for how to apportion the seats.

We try to give the students relevant examples of how this all works. An appropriate example for the readers of this column would be the following: Suppose four academic divisions have a full-time faculty count of LGS-55, TEC-39, HS-21, and BUS-47. College Council (like the Senate) takes two people from each division but Rep Council (like the House) apportions seats. Suppose there are to be 10 representatives - how should they be apportioned among the four divisions? It is interesting to note the methods once proposed by Hamilton, Jefferson and Adams allocate the seats differently. (See the table below.)

> Suppose there are to be 10 representatives - how should they be apportioned among the four divisions?

If this intrigues you, stop by and we'll be happy to explain the details. Meanwhile back in Montana, the Federal judge (from Idaho) wrote the minority opinion against Montana suggesting they offer a better method for apportionment before striking down the current one. The two federal judges (from Montana) in the majority ruling have upheld Montana's challenge so far. The complaint stems from the number of people each representative represents. According to the table below, in the Adams method, each HS rep represents 10.5 faculty while each TEC rep represents 19.5 faculty. Jefferson's method seems best in this example where the range of faculty per representative is least extreme. The national average for representation is one per 537,000. If Montana had two representatives, it would cut their average to 400,000. But then some other state has to lose a seat due to the limit of 435 house members.

The numbers in the preceding paragraphs may not have been your preferred reading but the need for them is obvious. We believe that our students need an understanding of the fact that Mathematics is a crucial part of many fields. We welcome you to sample this course which meets our desire to infuse certain Mathematical concepts in the curriculum.

The results of three methods of apportionment based on a fixed number of representatives

	Faculty	Hamilton	Jefferson	Adams
LGS	55	3	4	3
TEC	39	3	2	2
HS	21	1	1	2
BUS	47	3	3	3
TOTAL	162	10	10	10

Goodman (from page 2)

Male students, many of whom have been in previous female-deficient chemistry and physics courses, also begin to realize that physical sciences are not just "men's work".

In a *Binghamton Press-Sun Bulletin* article on child care a couple of weeks ago, an infant's symptoms were described and thereafter the child was referred to as "she". Still the writer felt the need to include in the last sentence the words, "regardless of whether the child was male or female". That would have been viewed as unnecessary if the masculine pronoun had been used.

Finally, in a Teaching Center workshop on enhancing the teaching experience given during the semester break, the presenter used "she" as the pronoun for "teacher", which had been used in the previous sentence. This was an oral presentation, where habit would have generally resulted automatically in the use of "he". The presenter was male, so he must have given some thought to his use of the feminine when the masculine would have seemed so natural.

I have started to adopt this same strategy in my lectures and on my exams. Like nearly everyone else, I used to use the masculine as a matter of course. But I'm a woman scientist and it seems ridiculous to describe a geologist in the field ad a "he" when I've done exactly the same things. Now I may say, "A geologist in the field would use *her* Brunton compass to measure the orientation of an outcrop and plot it on *her* map." On physics exams problems involving people are often used. These people have habitually referred to as "he's". I now try to phrase some problems this way: "A skier at the top of a 500-foot high frictionless hill starts from rest and slides down to the bottom. How fast is *she* moving at the base of the hill?" Note: the emphases in both of these examples are given here only for clarity; I do not emphasize the gender verbally in my class or on any written materials. I want it to be a natural usage--no big deal, no radical feminism, just common sense. My success in equalizing feminine and masculine pronouns has been limited, but I plan to put more conscious thought into the effort. If students smile when the feminine is used, I view it as a sign of appreciation for the variation. No one has so far objected or even commented.

Classes taught by men might especially benefit from using feminine pronouns at least occasionally; perhaps this would help create the mental image that a woman could just as well teach or do research within that discipline. In fact, the same benefits would apply in classes taught by women in a traditionally more female-oriented discipline (nursing, dental hygiene, office management, for example) when the instructor could sometimes use masculine pronouns instead of the more common feminine ones.

Keep in mind that I do not advocate inventing situations where the feminine third person singular must be used. "You" and "they" are perfectly good, frequently preferable, ways to avoid being gender specific. I certainly do not want to completely replace "he" with "she". Just realize that "she" is as good a pronoun for an individual person as "he".

Now, some comments on a related matter: titles of address, specifically Ms. vs. Mrs. or Miss. Imagine the following situation. It's the first day of class and you're introducing yourself to your students. If you're a man, you probably do not say or write your name as "Mr. John Doe". You say, "My name is John Doe", and the students will probably call you Mr. Doe. Fine. If you're a woman and you say "My name is Mary Smith", students will wonder what to call you or they will use Mrs. Smith. Why should the form of address for a woman depend on her marital status any more than for a man? I am not in favor of eliminating Mrs. and Miss as feminine forms of address for those who prefer them; however, where marital status is unknown or uncertain, Ms. should be the default title, especially in any circumstances where marital status is completely irrelevant. In a professional situation, a man would not be asked whether or not he is married. Requesting a title of "Miss" of "Mrs." from a woman is doing just that. The use of "Ms.", except when a woman requests otherwise, would avoid such problems.

Coming Next Issue

Next month's issue will contain the results of the wish list mentioned elsewhere in this issue, along with other articles.

The usual length for an article is 400 - 600 words, which will fill about a single column. If you have a longer article, or would like to edit a series of articles, feel free to inquire about having one or several pages of an issue reserved for you.

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Why I Teach

Annette Bucinell, adjunct instructor, Mathematics

When I graduated college in 1981, I wasn't sure what type of job I would want to look for. I had a full semester of student teaching, and had worked for a summer in a major computer company. I felt that both of those experiences did not represent what each job would be like as a full-time job, so I decided to look into each type of job further.

In the summer of 1981, I had two interviews for permanent jobs. One was for a system analyst, and the other was for an eighth grade mathematics teacher. I felt confident about both interviews, and waited to hear about each job. Luckily, no decision had to be made - I was only offered the teaching position. At this point, I was lucky to have a job and I was ready to be a "real" teacher.

Eighth grade is not the easiest grade to teach, especially for a first year teacher. You are dealing with not just teaching the academic material, but discipline and family problems, social interaction of teenagers, and raging hormones. Every day was a different adventure. You never knew what was going to happen on a given day, but every day you had to be ready for anything. There was nothing routine about this job. And that was something I enjoyed. When the end of June came around, I knew that the decision that was made for me - not to work in industry - was the right one.

> Every day was a different adventure.

I realized that I could make a difference in my students' lives. It didn't have to be in just mathematics, it

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In a Changing World, College and University Teaching Must Be Appreciated, Recognized, and Rewarded

A. Jerome Jewler
Professor, College of Journalism & Mass Communications University of South Carolina, Columbia

You won't be seeing this article in any publication on my campus because it's just not a popular issue with the establishment. Maybe that's why I tend to be jealous of those of you teaching at community colleges. You're there to teach, and it's perfectly all right to make public acknowledgement of this fact.

At major state universities like mine, teaching is important, too. Surely we realize the importance of preparing our young citizens for the future. Surely we know that education is essential for success in our complex and competitive society. Surely we believe that an overwhelming majority of students graduating from our high schools need to develop critical thinking and writing skills, need to understand the value of a liberal education, and need not only our guidance but our encouragement during their complex transition from adolescence into independence.

We know all that. Yet the culture of the university asks that we sublimate our passion for teaching to allow time for scholarly research. For if you're not discovering something new, you're not contributing to the "body of knowledge."

As one of my colleagues sees it, teaching is the ultimate punishment for those who fail in their quest for such "new knowledge." You don't want to do research? Fine, we'll give you a heavy teaching load. You do want to do research? Fine, we'll give some of your classes to someone else.

(Continued on page 2)

Professor Jewler is the co-editor of Your College Experience: Strategies for Success, Wadsworth 1992, and author of Creative Strategy in Advertising, Fourth Edition, Wadsworth 1992. He was asked to write this article while giving a seminar on campus during the intercession.

Jewler (from page 1)

On both sides of the fence, teaching is seen as tough work. American historian and educator Jacque Barzun, former provost of Columbia University and special adviser to the President on the arts, puts the task of teaching into sharp focus: "In recounting my apprenticeship, I called teaching backbreaking work and later hinted that steady teaching is a task that would fray the nerves of an ox. These are both sober statements. AN HOUR OF TEACHING IS CERTAINLY THE EQUIVALENT OF A WHOLE MORNING OF OFFICE WORK. The pace, the concentration, the output of energy in office work are child's play compared with handling a class, and the smaller the class, the harder the work. Tutoring a single person -- as someone has said -- makes you understand what a dynamo feels like when it is discharging into a nonconductor."

> "In recounting my apprenticeship, I called teaching backbreaking work and later hinted that steady teaching is a task that would fray the nerves of an ox."

I've managed to ignore the arguments which narrowly define research as "the discovery of knowledge" to the exclusion of what Ernest Boyer, president of the Carnegie Foundation for the Advancement of Teaching claims are also valid forms of scholarship: the synthesis of knowledge, the application of knowledge, and last, but certainly not least, the teaching of knowledge. But lately I'm getting pretty itchy under the collar as a result of having been elected to our University Tenure and Promotion Committee. I've sat through several long meetings in which anything less than "new knowledge" was pooh-poohed as undeserving of the term, "research." I've heard disparaging remarks about published books that "merely rehashed this candidate's doctoral thesis," when letters of support claimed the book was a significant expansion of that thesis and merited recognition as an important piece of work in itself. I've heard candidates decried for having "narrow fields of study" as well as for being "unfocused in their research." You can bend facts to suit your needs rather easily; I must admit to doing the same at times. And yet it is the same people who claim to be able to evaluate research who also claim that teaching is nigh impossible to evaluate, which is why it generally takes second place in the tenure/promotion process. If you can't evaluate it, how can you use teaching as a basis for estimating the worth of the candidate?

Space does not allow me to reject that argument by documenting the various formative and summative procedures for evaluating teaching that many are already using and that I summarized in a recent workshop on your campus to nearly forty willing subjects. Let me simply state that I believe we can document teaching effectiveness just as surely as we document scholarship, and that in the case of the latter, we need to broaden our concept beyond the idea of "new knowledge."

But let me allow Boyer to speak for himself: he reminds us that the myth in higher education today is that all faculty are or should be researchers, while the fact is that most professors--according to a Carnegie study--say they would much rather teach than do research. Unfortunately, at many campuses the reward system does not match the workload given professors.

When Harvard College was founded in 1636, Boyer continues, the focus was on the student, and educating the whole person was at the heart of the colonial college. For 150 years, that's what higher education in America was all about. Then came the American Revolution, and a need to build a nation. Accordingly, new colleges turned to the task, colleges such as Renssalear Polytechnic Institute (1824) in Troy, NY. It was a reminder that America needed engineers. In 1862, the Land Grant act linked higher learning to agriculture. The movement was towards reality and practicality.

The irony was that as the rules of scholarship were getting narrower, educational opportunities in this country were expanding. And while college missions were expanding, status was being measured by something termed "world class research" and "world class students," something which the majority of institutions lacked, and their struggle for identity was intense.

Boyer concludes by stating that it is time to move beyond the teaching vs. research debate. It's a tired topic at best. Can we admit the system isn't working and relate scholarship more directly to the rich diversity of institutions where faculty work?

Can we enlarge the vision of what it means to be a scholar? Boyer believes we can and we should. His vision of scholarship has four dimensions.

First, there is the DISCOVERER of knowledge. This is the disciplined researcher, who represents a crucial dimension of scholarship, for discovery is at the heart of what it means to be a scholar. But it is not all.

Second, there is the INTEGRATOR of knowledge, the person who makes connections among the disciplines, who is charged with the task of finding patterns and value in our knowledge.

Third, there is the APPLICATOR of knowledge, the scholar with the capacity to relate theory to the reality of life, for knowledge unapplied is pedantry at its worst.

(Continued on page 3)

Jewler (from page 2)

This concept of the utility or usefulness of knowledge is uniquely American. Today's scholars must concern themselves with today's crises: deficient schools, pollution, social issues. They cannot divorce themselves from reality. It is interesting to note that not only can knowledge be applied for the good of mankind, but that new knowledge actually can emerge from such practice.

> Without great teaching, scholarship is like a tree that falls in the woods and is never heard. This means active, not passive, learning.

And finally, there is the scholarship of teaching. The TEACHER of knowledge must be able to present knowledge to future scholars. Without great teaching, scholarship is like a tree that falls in the woods and is never heard. This means active, not passive, learning. Creative, not conforming, teaching. And collaboration, not competition, among students. Consequential human problems will be resolved only through collaboration. We need teachers who are involved in classroom research as well, in the evaluation of their own teaching ... even as it is taking place.

As I reread those words of Boyer, I think about my own large state university, where the boasts have to do with becoming a world class research university and where teaching, although some would claim differently, is taking a back seat. Yes, the administration has appointed a teaching task force and the office of the provost is hosting a series of monthly breakfast presentations on teaching. The former group has been meeting periodically for nearly two years and I have yet to see evidence of its commitment to teaching, while the latter series manages to pull together a scant five or six hour-long presentations each year, most of them too brief to afford any true meaningful discussion of teaching issues.

It was for these reasons that I joined three colleagues in the writing of a proposal for an instructional development center, one run by faculty for faculty, where anyone who wanted to improve his or her teaching could seek advice and assistance. We envisioned an ongoing program of not only presentations, but confidential evaluations of teaching, videotaping of classroom performance for those who requested it, assistance on audiovisual teaching aids, exposure to a variety of methods of conducting a class, the establishment of a library of teaching literature readily available to faculty, and that intangible feeling of support for what some of us deem the most important reason for a college or university's existence: that incredibly rewarding interaction between teacher and learner as a body of knowledge is passed down from one generation to the next.

We worked hard on our proposal, citing evidence--like good scholars--of the growing trend on major university campuses to focus on teaching in the manner outlined in our recommendation. We arranged a meeting with the President and presented our proposal, and we returned to meet with him several months later to underscore our dedication to our efforts. That is about as far as things have gotten after nearly nine months. We asked the office of the provost to work with us in accomplishing our task. We are still waiting for an answer and none of us has been invited to join the teaching task force.

So I applaud your success at establishing a teaching center. What's more, I urge you to visit and support your center, to become involved in its programs, to suggest ways in which it can enlarge its influence in the classroom. For when teaching improves, learning improves. When teachers feel validation for their efforts, they work harder for their institutions. And when every classroom experience is a positive one for both teacher and learner, that is the finest gift any true scholar could possibly hope for.

Bucinell (from page 1)

could be that they just needed someone to talk to about their problems. A few years ago, I ran into one of my former students in a local bar. We sat down and talked for a while. He wasn't the best student, in fact, he was repeating the eighth grade when he was in my class. At the end of our conversation, he said, "You were my favorite teacher. I may not remember all the math you tried to teach me, but you showed us more than just math." And that made me feel good - I had made a difference. That's one reason why I'm still in teaching today.

> And that made me feel good - I had made a difference.

Another very important reason is that I can spend a great deal of time with my own children. As an educator, I know how important that is. Although it wasn't a major factor when I entered teaching, it sure is a major benefit! I can make the time to help in my children's academic and social development. Someone else isn't raising my children. My morals and values are the ones that are being instilled in them. They will encounter many types of people and be in many different types of situations in their lives. Hopefully, they will be able to make reasonable decisions for themselves because of the values that they learned through me. Although they will pick up things from other people, the more time I can spend with them, the more they can pick up from me.

WISH LIST

The following are some of the wishes sent in response to last issue's request. They are many, varied, and presented in no particular order. If you can help with a wish, or have information that a wish already has come true, drop a line to the Teaching Resources Center.

•••

A "HELP" desk for evening students the first two weeks of classes. (Many stop in to Community Education office seeking help with registration, missing classes and instructors, etc.)

I wish the college would repair and refurbish the track.

I wish I could understand the new phone system (I'm sure the problem has to do with my technophobia).

I wish there were a weekly common hour.

I wish BCC had a day care center on campus for the children of students, faculty and staff. A center would also serve as a lab school for early childhood, nursing, mental health and psychology students. BCC is one of very few N.Y. State two year colleges not offering a day care service.

I wish BCC had a swimming pool, not just any pool, but one that would make SUNY-Binghamton's look like a wading pool.

I wish BCC had SNOW!

I wish I had time for a few non-school things I'd really like to do to improve myself. There's books to be read, letters to write to friends, movies to see,... Maybe next summer or fall.

Swimming Pool.

Jogging/walking/biking trails - or at least side walks around the perimeter of campus.

A policy/procedure manual so we all could know who is supposed to make what decisions and by what processes.

In the event that there are "tough times ahead" for our community at BCC, I wish all of us peace, patience and understanding with each other.

That non-English speaking students were required to do an intensive course of ESL before being enrolled in any other courses.

In the "old days", the Public relations director published a list of all college employees according to the department or office. It was kept up to date with comings and goings via the "Communicator". This list was a valuable publication and I'd love to see it available again.

That senior level students might be funded as teaching assistants specifically to help with grading.

I wish the Library had a budget with a realistic number.

I wish administration would fill all the lines that are open.

I wish Tech Assistants had a promotion system.

We need to steer clear of "babying" our students and give them much more responsibility!! They need to be pushed! They can take it!

I wish mutual respect, personal responsibility, and camaraderie could replace gossip, backbiting and politics on campus.

I wish that our vice-presidents would put their personal differences aside and work TOGETHER to support the goals of our institution.

More computers, and not just the IBM type.

More and better classroom space.

Students that come to college for the challenge and enjoyment of learning, rather than as a requirement for a better job.

A 486-33MHz machine on my desk (or in my briefcase.)

Coming Next Issue

The next issue will be devoted to the topic of critical thinking. Rick Firenze will be guest editor.

Center Stage is published monthly in cooperation with the Teaching Resources Center.

Send correspondence and contributions to the editor:

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Center Stage

A Platform for the Discussion of Teaching/Learning Ideas
Broome Community College -- Binghamton, New York 13902

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"At BCC, faculty in all curricula will seek to incorporate aspects of critical thinking into their teaching, and in some courses required of all students, critical thinking exercises will be central both to course objectives and instructional methods." -- Coherence and Purpose: General Education at BCC

The Critical Thinking Committee stands ready to assist all faculty in the task of infusing this mode of instruction into their discipline. Committee members are: Bryan Blanchard, Jim Boyden, Ann Cleary, Rick Firenze (Chair), George Higginbottom, Ben Kasper, Ralph McGrew, Steve Natale, John Pagura, and Jackie Shrader.

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Critical Thinking? What Is It Anyway?

Rick Firenze, Biology

As chairperson of the Critical Thinking Committee, I am often asked by colleagues, students, family members and strangers at the mall; "What do you mean by critical thinking anyway?" In response to this question, I often blurt out one of Richard Paul's ponderously florid definitions -

> "The art of thinking about your thinking while you're thinking so as to make your thinking more clear, precise, accurate, relevant, consistent, and fair."
>
> "Thinking which meets epistemological demands insofar as they square with the vested interests of the thinker."

This response is given primarily for one of two reasons: either to avoid further questioning or to delight in watching the eyes of my inquisitor glaze over. However, if I'm truly interested in giving a serious answer to what is often posed as a rhetorical question I respond not with an answer but with a question of my own. It could be:

What do you think about surrogate parenting?
Are men inherently more aggressive than women?
What is your opinion of Operation Rescue?
How do you feel about raising the speed limit to 65 mph?
Are you pro or con with respect to the death penalty?
Are homosexuals born or made?

After what I hope is a brief response I simply ask, Why?

It should be obvious from the above that the subject of the question I pose is indeed irrelevant. In fact, so is the answer. I'm not interested in what the person thinks, but why they think that way. How did they arrive at their conclusion. What are their basic Assumptions? Inferences? Data? Interpretations? Implications? Evidence? Are their conclusions truly conclusions or merely more assumptions? After almost a quarter of a century of teaching (ouch!), I'm thoroughly convinced that most

(Continued on page 2)

Firenze (from page 1)

students wouldn't know an assumption from a conclusion from an inference from an opinion from a fact (whatever that is?). In fact most have a very difficult time in actually telling you why they "think" what they "think." Most have never truly thought about their thinking. THOUGHT ABOUT THEIR THINKING! Oh no, shades of Dr. Paul? Not actually. Try a simple task. The next time your students reach a conclusion or form an opinion of a problem you have posed, ask them to ask themselves the question, WHY? With apologies to Descartes, "I think...therefore I must have a reason to think that way." Hopefully this will encourage them to learn to recognize and differentiate inference and implication, evidence and opinion, bias and sound judgement.

EXAMPLE: Last semester in COL 101 "The College Experience" I asked my students to give me their decision on the timely subject of the Clarence Thomas - Anita Hill trial. On one side of a 5 x 7 card they were to write one of two words, Guilty/Innocent. They found that part far too easy. On the other side they were to give their reasons why they had reached that conclusion. Both the verdict and the "rationale" were then shared anonymously with the class. The discussion quickly exposed the illogic of their logic. In essence it exposed "uncritical thinking."

When a common response is "He's guilty because he's a male and all males are pigs"; it is only too obvious that critical thinking was not necessarily applied to this case. After all, those students who answered in such a way were obviously female (inference) because only females (assumption) who have had negative experiences with males (assumption) would feel this way.

It should be emphasized that this pedagogical method should not be restricted to the social sciences, humanities or matters of ethical and moral dilemmas, but fast finds its true home in the sciences and its stepchild the technologies.

The concept of critical thinking is relatively easy to grasp, always ask yourself how and why you have reached your conclusions. The process however, takes a little more practice and a great deal of work. This is why one should expect less than an enthusiastic response when critical thinking projects are introduced to the student. I'm sure, as educators, most of us encourage our students to do some critical thinking in the classroom. I'm equally sure most of us do not demand nearly enough. As educators we must place less emphasis on the destination of education and more on the journey itself.

Information Exchange

The Information Exchange is a new monthly feature. We welcome your questions and answers. Please send them to The Teaching Resource Center, C/O Center Stage.

Q. **Where are there FAX capabilities on this campus that faculty can use?**

A. Currently four facsimile machines are available within the Academic Affairs domain. They are located in the Academic Affairs Office; The Business Division Office; The Library; and The Technolgies, Engineering and Computing Divison Office. The Liberal Arts & General Studies and The Health Science divisions will be getting machines for their areas in the near future. V.P. Blanchard, Dean Reilly, Ms. Johnston and Dean Beston have authorized faculty use of machines in their areas. The fax numbers are:

Academic Affairs Office	778-5173
Business Division Office	778-5170
The Library	778-5108
Technology Division Office	778-5345

Q. **What is the procedure for dealing with a medical emergency in the classroom? Is it the same for day and evening classes?**

A. In the event of a medical emergency during the day (8am-5pm), the faculty member should send someone to the nearest phone to call the Health and Wellness Resource Center at 5181. During the evening hours the Security office should be called at 5083. The caller should describe the problem, identify the individual having the problem, and indicate the location. The Health and Wellness Resource Center staff will respond immediately, access the situation and call for an ambulance if necessary. -- Mary Ligouri, Director, Health and Wellness Resource Center

OVER TO YOU

I am interested in trying cooperative learning methods in my classroom and would like to talk to other faculty members who are have tried this approach. Has any one tried it? What kind of impact has it had? -- Denise Abrams, Physical Therapy Assistant Program

Does the campus have facilities to make high quality color slides? -- Paul O'Heron, Mathematics

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"Not that the incredulous person doesn't believe in anything. It's just that he doesn't believe in everything." -- Umberto Eco

Critical Thinking In Substantive Law

Gerald A. Loy, Business

Fostering the concept of Critical Analysis and Critical Thinking in the learning environment is an interesting, as well as a challenging goal, facing the classroom instructor. My areas of teaching responsibility include Business Law I, Business Law II, Real Property Law, Family Law, Torts, Negligence, and Personnel Management.

I am of the firm belief that the presentation of substantive law (statutes, case law, precedent, ordinances, and common law) is only one part of my responsibility in teaching the Law and Management Course curricula. Of at least equal, and at times superior importance, is the idea that the student must apply the substantive rules and concepts as learned in the classroom to critical and diverse thinking situations. These situations must be such that the student is aware that most arguments advanced by them, no matter how seemingly solid and overly pervasive, can be answered and challenged by an equally solid and pervasive counter argument. If the student is genuinely convinced regarding the existence of, and the challenge of, the Counter Argument; the student will "gear-up" to meet the challenge. The "gear up" necessarily requires that the student critically analyze and be prepared to meet the on-coming challenge. The "gear up" is Critical Thinking.

> The "gear up" necessarily requires that the student critically analyze and be prepared to meet the on-coming challenge.

To insure the equality of the argument and, therefore, to foster the element of Critical Analysis, I have developed a Business Law classroom project including a hypothetical case problem which contains many equally arguable issues. Subsequent to supplying the student with the case problem, a packet of case law in provided. The case law is carefully chosen to present two cases in direct support and two cases in direct opposition to each of the eight issues addressed in the case problem. Students are assigned the responsibility to advocate one position and oppose the other. Typically, the class is divided in half with regards to the assignment. The students are required to review the material and prepare a 3-5 minute oral argument for each issue. After oral arguments, the student is required to submit a written position paper incorporating the methods, rules, concepts, and substantive materials taught in Business Law I and Business Law II.

This exercise forces Critical Thinking because it requires that the student not only prepare and analyze their own position, but also forces the student to critically analyze the presumptive position of the other side.

This exercise can be conducted in many different academic areas which stress the possibility that equal arguments exist on both sides of any pertinent issue. The key in forcing the element of Critical Thinking is to provide a "closed end" supply of reference and authoritative material form which the student can argue a particular position (the packet of case law previously discussed). This material must be carefully chosen so as to provide an equal argument to each issue presented.

My next endeavor is to develop the project to include "open end" source material. This will allow the student to expand their Critical Thinking into the area of research.

I would be happy to provide anyone with the case problem, case law packet, and examples of the final written product. This project serves to satisfy the writing requirement in Business Law II as well as more importantly, to motivate the student to critically apply the substantive materials learned in the Business Law curriculum.

The Perils of High Tech Employment

James L. Antonakos, Electrical Technology

Sometime during the semester in my EET267 Digital Electronics and Microprocessors course I ask my students a question. Prior to asking the question I describe an almost ideal situation:

Imagine that you have just completed all your job interviews. A high-tech firm is interested in your talents and makes you an offer. The money is better than you had hoped for and the location of the plant is in a part of the country where you have always wanted to live. You accept the position, only to find out during your first week that the company has secret military contracts and you will be helping to design guidance systems for nuclear missiles.

At this point my question to the students is:

Do you keep the job?

The students must give their reasons for keeping or leaving the job. Barring no objections I read all of the responses to the class (without any indication whose response I am relating). This gives the entire class the opportunity to see how other people make value judgements, and gives them something to think about before they actually begin their interviews.

"Every thinker puts some portion of an apparently stable world in peril." -- John Dewey

But We Have Always Done It That Way!

Dan Dodway, Mathematics

CAUTION: You will never be the same if you read this.

A great thinker died recently leaving a legacy that will live as long as people continue using computers or benefiting from their many applications. Grace Hopper was famous for many things and many quotes. While watching her speak, I thought that I would like to be that sharp when I reached her venerable age. After a while I realized that there was little hope of this since I am not that sharp now.

The title of this article is guaranteed to invoke her spirit because she promised on many occasions (and I have it on video tape if you want to know more about her) that if you ever say "but we have always done it that way" she would come back to haunt you.

In her lengthy career in the Navy she often encountered resistance to improvements she sought, and had delightful ways of getting around obstacles. See the tape. She recognized needs for improvement and realized it could not take place without change. Certainly not all change represents progress, but it is equally obvious that no progress will take place without change.

> Heraclitus ... observed that you could never step into the same river twice because life is in a constant state of flux.

Among the early Greek philosophers who contemplated change was Heraclitus who observed that you could never step into the same river twice because life is in a constant state of flux. On closer examination it can be observed that it is not even possible to step into the same river once since it is changing even as we step into it. This explains the "Caution" at the beginning. For what it is worth, those who do not read this will also never be the same.

One allegorical interpretation of the Bible considers the forbidden fruit to be from the tree of knowledge. Eating it resulted not only in a loss of immortality and innocence, but also in a loss of ignorance. Every time we learn something new, we are no longer the same person, and, in some sense, our former self has died. It is doubtless the desire for self preservation which explains our students' reluctance to learn. Mental inertia must be overcome.

Philosophers have always pondered and tried to determine what they knew. Sophists once claimed:

1. We can never know anything.
2. We won't know we know even if we do.
3. Even if we know something, we won't be able to communicate it.

Socrates went one step further. He was the wisest man in the world, and he knew it (in what has come to be known as Socratic irony). He had one bit of knowledge: He did not know anything except that he KNEW that he did not know anything. This put him one step ahead of everyone else who did not know even that.

A more recent thinker and mathematician, Descartes, attempted to confirm his own existence by the famous statement: "I think. Therefore, I am." Though more impressive in Latin: "Cogito. Ergo sum." it is neither persuasive nor useful. It is not persuasive because all that is really certain is that thinking is going on. It is presumptuous, however reasonable, to assume a thinker therefore exists. His conclusion is not particularly useful because no one would doubt his existence anyway (except perhaps another philosopher).

Scientists lost patience with philosophy about the time Hume noted that cause and effect (the backbone of science) cannot be truly observed. Pushed to the utmost limit of certainty, all that is ever observed could be classified as multiple instances of the Post Hoc fallacy. Namely, events seem to follow what we interpret as their causes, but all we can be philosophically certain of is that one simply follows the other. For example, in watching a play we see an actor flip a switch and a light on the set comes on. However, the cause is probably controlled by a technician behind the scenes. Life might be like that with a malevolent deity or a deity with a strange sense of humor.

Pushed to the extreme of critical thinking the best that might be hoped for is solipsism. A more pragmatic and vastly more common approach is to accept things which seem reasonable unless given evidence to the contrary. This led to the scientific method which involves forming hypotheses, testing, and not accepting results which cannot be replicated by other researchers. Replication by independent agents is needed since cases abound of "fudged" data which has been ill used to support false conclusions (frequently for financial gain).

Using this scientific model, progress takes place through research and development, and is shared through professional journals, conferences, and other media. Newton claimed the reason he could see so far was because he stood upon the shoulders of giants. Our education thus far has given us a few giant shoulders from which to see the world, but there is a lot more out there.

(Continued on page 5)

"Who needs information this high off the ground? Just give me confirmation." -- Roger Waters

Dodway (from page 4)

Change is inevitable. Approached with the right attitude and method, it can lead to progress. Ignored, it will lead to stagnation and atrophy. It has been my pleasure to attend numerous rewarding conferences. While many have been focused on my particular discipline, all are generally useful in suggesting the process as a model for progress and critical thinking.

This model suggests challenging conventional wisdom which often is simply wrong or does not apply as generally as "everyone" seems to think. Otherwise, Galileo would not have challenged the ancient notion that heavy objects fall faster than lighter objects. In education as well as science, conventional wisdom is in a state of evolution.

Suggesting new ideas may not always be greeted with joy. As Taylor, a seventeenth century essayist, expressed in verse:

> "Though man a thinking being is defined,
> few use the grand prerogative of mind.
> How few think well of the thinking few.
> How many never think who think they do."

We are fortunate to be members of an academic community where the freedom to differ and explore is tolerated, and, if we are lucky, encouraged.

When confronting the status quo, look to the evidence. Where is the data? That is the criteria by which we should measure what will be, not "but we have always done it that way" or "everyone else does it that way."

Where do new ideas come from? Inspiration is great, "but there are more things in heaven and earth than are dreamt of in your philosophy." You are missing out on potentially useful resources if you do not read professional material such as Center Stage and Innovation Abstracts and writing in your area. Students and colleagues can also provide an abundance of ideas. For example, I am able to generate a lot of useful comments from students by asking for anonymous written feedback.

Another pleasant way to grow with your discipline is to attend professional conferences. Two which I strongly recommend that are not specific to any one discipline are:

National Institute for Staff and Organizational Development in Austin, Texas on May 24-27, 1992, and
Problem Solving Across the Curriculum at Wells College in Aurora, New York on June 18-20, 1992

Brochures are available in the Teacher Center for these and other conferences. The BCC administration has made a commitment to support professional travel recognizing the value which goes beyond what can be measured in dollars and cents. Also, the Foundation/FSA Professional Development Assistance Program provides financial support for travel and course work. I am grateful for the help I have received, and encourage others to make use of the opportunities.

Putting the Problem before the Solution

Sandra K. Wright, Computer Studies

In CST 200, Systems Analysis and Design, students are frequently asked to respond to mini-cases which highlight some newly learned technique or spotlight a state of the art technology. One of the most interesting mini-cases in terms of student response and critical thinking skills outlines a system design disaster. The story involves a young systems analyst, Valerie, and an assistant manager of the Accounts Receivable Dept., Larry, who are being questioned by top management regarding the disastrous outcome of a newly implemented Accounts Receivable information system. The system, which cost over $625,000, resulted in lost or erroneous records, angry customers and potential law suits. Students are asked to respond to a variety of questions including: What should have been done to avoid this outcome? Who is responsible for the failure of the system? What should happen to the individuals who are responsible?

Students struggle with the idea that Larry and Valerie will probably lose their jobs. They empathize with these employees because their mistakes are very typical and very human. Excitement over new technology and the promise of a state of the art system led them to hasty decisions. Solutions were chosen before alternatives were fully evaluated. Design steps were skipped in order to keep from falling behind schedule. Feasibility of the project was never assessed once the project began, and sunk costs were used to justify continuation of the project even when it became obvious that things were not turning out as planned.

The class discussion of this case study is lively andsometimes emotional. The whiz-kids in my class are anxious to apply all of their newly acquired technological skills to real world problems. It is difficult for them to slow down and analyze problems, to look for the alternatives, and to determine what needs to be done before deciding how it will be done. Critical thinking is essential to the successful implementation of computer information systems and obviously essential to their future success as productive employees.

"There are no dangerous thoughts; thinking itself is dangerous." --Hannah Arendt

Uncertainty Analysis

Ralph McGrew

In my laboratory sections of the course Engineering Physics 1 and 2, I assign the students to think about the uncertainty in their measured data and calculated results. Typically the students are instructed:

- •To repeat each measurement for a few trials,
- •To call the largest and smallest trial-values the upper and lower bounds,
- •To take half of their sum as the "best values" used in calculations and to write half of their difference as the plus-or minus "absolute uncertainty,"
- •To convert the absolute uncertainty in each datum into a percentage uncertainty,
- •To estimate the uncertainty in the result of a calculation by adding up the percentage uncertainties in all the data entering the calculation, and
- •To state whether the uncertainty is large enough to account for the difference between the calculated result and the corresponding accepted value.

Following these steps is difficult for some students and begins to stretch the minds of nearly all. From their previous education, the student tends to think of a quantity as having a single value; now she must think of a measurement giving a pair of numbers, a best value and an uncertainty. "That's what I got" must now be replaced by forming a professional opinion that the true value of the measured quantity is "inside the range I certify". To decide how many times to repeat a measurement she needs to think about the measured numbers while the trials are going on.

As the course continues, the students are introduced to a few more methods for estimating uncertainties, to deal with cases where the trial values show no scatter, to deliberately get some apparatus to show how a theoretical idealization applies to it only imperfectly, to follow uncertainty through a calculation more realistically, or to deal with many measurement trials instead of just a few. So the students need to make some reasonable choices. They may feel a tension between claiming a small uncertainty in some datum and a large one. With others, I probably never tell the students that they are assigned to "think critically," but they have this responsibility when they must use all available evidence to write down in their measurement an uncertainty neither so small that the true value is surely not in the range, nor so large as to show that they could have attained far better precision. Their need for critical thinking is particularly clear when students, working together, call me over to settle a disagreement about the size of an uncertainty. Then I try to restate the reasoning behind both of their uncertainty estimates. I tell them they must make their own choice, as the judgement must be informed by their own experiences in making the measurement. Thus, as is generally true in critical thinking, appeal to authority does not work. The student is given the ability to win an argument. Compared to a lecture classroom, the laboratory setting is more conductive to their accepting this ability and responsibility, for in lab the students are the active agents and work in twos and threes.

> ... estimating uncertainties is an essential part of measurement, of calculation based on experimental data, and of comparing experimental results with one another.

In many fields critical thinking is essential to treating subject matter fairly and adequately; here estimating uncertainties is an essential part of measurement, of calculation based on experimental data, and of comparing experimental results with one another. For example, the news media quote uncertainties when giving survey results. Every engineer knows that in measuring a quantity the determination of each successive digit has a much higher price-tag. Students often find this price idea remarkable. In my experience, if the student is to recognize the generality and importance of the concept, she needs to work with uncertainties in the first lab and in every lab. Then she can compare high uncertainties in some data with low uncertainties in others, learning to recognize a negligibly small uncertainty. Then she can compare higher total uncertainty in some experiments with remarkably low total uncertainty in others.

There is a different approach to thinking about experimental "errors". The student could be assigned to ignore measurement uncertainties, do calculations as if the data were exact, find the percent difference between the calculated result and its corresponding accepted value, and then speculate on what causes the difference. I find this approach less desirable just because it does not encourage critical thinking. With this approach the student can easily confuse experimental errors with mistakes; he can think that error arises where he first sees it, at the end of the experiments, instead of being intrinsic to the data at the start; and he can think that theory does not really describe experiment. The student will be unable meaningfully to account for the difference seen in the result unless she really estimates the data uncertainties back at the start. The student will be unable to understand "agreement" between experiment and theory or between experimental values measured by different means, unless he can use the idea of a quantitatively estimated uncertainty.

(Continued on page 8)

"Every age has its myths and calls them higher truths." -- Anonymous

"Tricks Of The Trade"

Department of Nursing

Teaching-Learning Project -- Fun for Student and Family

Claire Ligeikis-Clayton and Janet Wright

Integration of writing skills, critical thinking, conceptual learning, and concurrent theory and practice are of paramount concern across our campuses.

Of equal importance is keeping our sanity as professors and not inundating ourselves with mountains of paperwork. When we have classes of over 30 students each, multiple choice exams are especially attractive.

But we wanted to encourage more writing. Therefore, we developed a teaching/learning project that required writing, but that limited writing assignments to one page each! We have found that students must gather research, analyze and use critical thinking skills to include only one page of information.

***

Teaching Through Poetry

Claire Ligeikis-Clayton

When I recently attended the Teaching Excellence Conference in Austin, Texas, I attended a workshop on "Teaching Through Poetry" and have since incorporated it into my lectures.

Example: I teach a class on Loss through Stillbirth or Miscarriage and I use a poem "The Kitten", which discusses a stillbirth kitten. I hand out three index cards and ask for one volunteer to read the poem aloud to the class. One of the premises of reading aloud is the sway of the voice affects meaning on the audience. I ask the class to write a one minute reaction and share their thoughts. I ask a second volunteer to read aloud and this time ask the audience to write down any question they have regarding the poem or a phrase that really stuck out. I ask a third volunteer to read aloud and this time write a third reaction. Each time students write a reaction they become more indepth with the content. I teach my entire lecture from the points the students bring up and encourage them to learn the content on more of a feeling level. This concept could be further carried using popular music lyrics or maybe passages out of textbooks.

> I teach my entire lecture from the points the students bring up ...

***

Collaborative Learning Quizzes

Barbara Marckx

Questions in our nursing courses are very difficult for students. In order to improve the students' ability to answer these high level application questions, learning quizzes were developed. These twenty question quizzes were composed of sample type items selected from the test bank of questions used in this course.

On the day of the learning quiz, each student was provided with a copy of the quiz and instructed to pair up with a peer in the class. The students were to select answers as a pair in any manner that they chose. Some did the quizzes independently and then compared and discussed the answers. Others did the entire quiz together. Some pairs came up with common answers and others maintained individual answers. When they were finished, I reviewed the correct answers with the students and we discussed the rationales for the various choices.

The students unanimously endorsed this type of learning activity as an important tool in helping them understand the course content, as well as an aid in the critical thinking necessary to discern the correct response on exams.

I was concerned that the pairing choice of the students would be an issue with the students but I discovered that they almost uniformly chose the person in the adjacent desk with no concern for the academic ability of that person. (I had assumed that high achievers would seek out other high achievers and purposely avoid pairing with someone known to do poorly, but this did not occur). Students of all abilities stated that they learned much from the problem solving strategies that they used together. One student said that her peer stated a rationale in a way that she would never forget.

I used the learning quizzes initially to give students an idea of the type of questions they could expect on their exam, but by conducting the quiz as a collaborative activity, it became an effective critical thinking strategy as well.

***

Crib Cards

Mary More

On one exam students may use 5 x 8 cards filled with any information they think will help them on the test. To do this effectively, they must analyze what they know (self-evaluation) and contrast that with what they need to know.

(Continued on page 9)

Thinking About The Real Problems - The Design Project

Frank Plunkett, Biology

In Technical courses, such as one I teach entitled Mechanical Design, the primary objective is to enable the students to utilize a set of tools that allows them to analyze certain categories of technical problems. The idea is that after taking a wide variety of such courses they will be able to analyze a wide variety of technical problems. The concept works pretty well up to a point. As long as the problems resemble those explicitly treated in the course (assuming the students remember the material) it's smooth sailing. But real technical problems, like all real problems, possess subtleties which are not treated in textbooks or classrooms. This fact cannot be considered a shortcoming of the course, since variations are simply too numerous to treat in fifteen weeks, or thirty weeks, or a hundred weeks. While this is true, it is in the best interest of the students, and consequently the responsibility of the instructor, that they become aware of the fuzzy nature of real problems.

What is it that makes real problems fuzzy?

What is it that makes real problems fuzzy? The problem is usually with the definition. The criteria are either insufficient to completely define the problem or they conflict with one or more aspects of the problem. In the first case informed assumptions are required. For example, in the design of a cast iron machine component it is important to account for the possibility of a suddenly-applied shock load. This load may not be defined in the functional requirements for the component, but the experienced designer recognizes that such events often occur in handling and transport. In the case of conflicting requirements some kind of compromise, or tradeoff, is necessary. Such a situation occurs whenever a building air conditioning system is designed. The comfort of the occupants must be balanced against system energy consumption (operating cost in the real world). In either case informed decisions are made which supply artificial, but reasonable clarity to the problem definition. The fuzziness is cleaned up.

What is necessary for the acceptable solution of such problems is the application of thinking skills: inquisitiveness, and analysis. Those with a curious nature come by the first skill naturally, and those possessed of genius excel at the second. For most folks expertise requires discipline and practice. The traditional components of a technical course: homework, laboratory experiments, and examinations do demand some degree of discipline and practice. But the amounts are insufficient, particularly regarding the development of inquisitiveness. An additional component is needed. Inclusion of a realistic project is one means to enhance the discipline and practice of thinking.

The panic displayed on the faces of the students is most uplifting.

I review the requirements for the Mechanical Design project during the first laboratory session at the beginning of each spring semester. The panic displayed on the faces of the students is most uplifting. The design requirements fill less than one page, and after I read them aloud I notice a few students turning the sheet over looking for more. The panic is followed by a period of paralysis. After a few weeks I begin to interview the students about their preliminary work, and their concepts for the design. Some will have accomplished quite a bit, some are off on the wrong track, and some haven't done very much at all. These discussions seem to help a bit, and some technical questions get answered. Real motivation comes more from the interactions that the students have among themselves. Although the more advanced students are somewhat protective of their designs they are also proud of them. They often give some guidance to those not so far along with their projects. It is interesting to note that those students with the highest GPA's are not necessarily the most comfortable with the design projects.

At the end of the semester the projects come due. The students who worked, researched, and questioned the most are rewarded for their efforts. Those who did less are likewise not surprised by their grades. In either case every student has had the experience of taking a realistic problem with its fuzzy definition and, by means of inquisitiveness and analysis, developing a useful solution. The next time one of these students is faced with a complex and ambiguous problem they will not approach it in the same way as the Mechanical Design project, because they will have learned something about problem solving and will find a better way.

McGrew (from page 6)

I have fair overall success with my approach. Inside the physics laboratory, the student is busy with manipulating the equipment, applying the week's concepts from lecture, and writing up the report. In grading a ten-point lab, only about one point is for uncertainty analysis. Humans may have an instinct for economy and some students an instinct for learning/working as little as they can. So some students pass the course without once carrying out the program of following uncertainties from data through calculation to result. Some do not see the generality of the idea. I invite your suggestions.

"Knowledge should not be confused with belief." --Richard Paul

From Textbook to Controversy in One Step

Kelli Ligeikis, Civil Engineering Technology

There are many technical electives offered in the Civil Engineering Technology Department. Like most technical curriculums, most of these courses are analytical in nature where critical thinking occurs through analysis of engineering problems and development of their solutions. However, I teach a course in Construction Management which does not fall into the same category as most techical electives. Quite the contrary, this course emphasizes facts and strategies related to the control of both time and cost for construction projects. More specifically, much of class discussion and content is focused on the role various parties (owner, architect/engineer and contractor) involved in the construction process play.

Due to the nature of this course, it appears that a strict lecture format would be recommended to present the facts and strategies. But, as one might guess, a strict lecture format could prove to be quite boring and non-stimulating for the student. As an educator, the problem becomes one of how to "spice up" course content to promote interest in a subject so vitally important to their educational goals and career development.

Well, we've all heard of active learning. Of course, involving students in their own learning can be a challenge. In order to promote active learning in the Construction Management course, I have applied a critical thinking technique in the following way.

As part of the coursework assigned in CIV236 - Construction Management, students are required to keep a journal. Journal entries include reactions to articles, field trips, text readings, guest lectures, etc. I have found one magazine source to be especially relevant for course use, Civil Engineering. This monthly magazine contains a section entitled "Court Decisions." These articles refer to lawsuits in construction projects. More specifically, many involve supreme court decisions regarding liability and damages against one of the construction parties. Students are asked to evaluate the cases, decide if they agree with the court's decision, and to support their own decisions with facts from their course text, class discussion and/or actual experience. Quite often, the supreme court rulings do not appear to be supported by information from our texts and students must analyze and determine why.

I have found the journal articles to be a welcomed class assignment. They elicit conversation and class discussion amongst a group of students with a diverse background in the construction industry. They certainly promote critical thinking through active learning. But more importantly, the students can now understand the relevance of this course and how it applies to the real world.

Nursing (from page 8)

Ethical Drama Analysis
Barbara Marckx

Analyze an ethical dilemma using Curtain's ethical analysis model. Dilemmas should be chosen by the student from his/her own experience or literature search. If the student is unable to formulate the dilemma, one can be obtained from the instructor. Use the following guidelines to construct the paper:

1) Gather information. (10)
2) Identify the ethical problem. (10)
3) Identify persons involved, their roles, rights and duties.(20)
4) Identify possible courses of action. (10)
5) Identify consequences of actions and ethical ideal (principles). (30)
6) Select an option (identify rationale for choice). (10)
7) Writing mechanics and manuscript form (vocabulary, grammar, sentence structure, spelling, punctuation, neatness, typing). (10)

Spanfelner (from page 10)

analogy between the media, TV, and books. The hardware lends an element of sophistication.

I'll reiterate my initial question, "What's all the excitement about in the Library these days?" For me it is observing the students' enthusiasm with regard to conducting research. It is the excitement that accompanies the witnessing of small, but significant successes on the part of our Library clientele.

Help Wanted

After two years of acting as editor to this publication, Paul O'Heron has decided to concentrate his efforts on other personal and professional matters. As a result, the Teaching Resources Center is looking for a faculty member to pick up the reins starting with the fall semester.

If you are interested in continuing the fine tradition of Center Stage as a forum for eductional innovation, excellence, and stories, please contact Alice McNeely in the TRC, or at ext.5354.

What's All The Excitement About in The Library These Days???

Deborah Spanfelner, Library

A plethora of new and exciting things are happening in the Library. Once again the Library has reinforced its role as the information hub for the college with the installation of the computerized CD-ROM Program, Periodical Abstracts Ondisc, in the Reference Room. Periodical Abstracts Ondisc or PAO, can be compared to the Readers' Guide to Periodical Literature in that it allows the patron to search for magazine articles on a variety of subjects. There exist three obvious differences that come to mind when comparing these two indexes:

1)PAO allows for keyword searching anywhere in the record. It facilitates the combination of two or more concepts. However, PAO does not have the extensive system of cross-references that the Readers' Guide has. Readers' Guide contains a controlled vocabulary and requires a certain amount of guesswork with regard to terminology.

2) PAO provides an abstract of the article. This has allowed students to make more efficient choices with regard to relevancy. It forces students to develop their critical thinking skills.

3)You can print out the results of your search on the computer. This saves valuable time for our patrons.

PAO is a menu-driven program which renders it very user-friendly. Since the installation of our first terminal in the summer of 1991, there has been an overwhelming response regarding its usage. Due to its popularity, the Computer Center has recently installed another workstation. PAO indexes information from over 450 journals from the United States, Canada, and the United Kingdom. Our periodical collection supports this index with over 204 magazines and journals.patrons tend to give more thought to their search strategy

When using PAO, patrons tend to give more thought to their search strategy. Students are encouraged to "AND" two or more concepts together in order to focus in on relevancy as opposed to recall. This method of searching reinforces the concept of set theory in mathematics which makes use of the Boolean AND/OR operators.

With the introduction of CD-ROM technology comes the advent of end-user searching. Patrons seem content to interact with the computer. It teaches them that research is a process and requires a search strategy.

We monitor the two workstations as much as possible so that the novice experiencing problems may be helped. Instructions are kept at each terminal. Some students prefer to learn PAO in a rather serendipitous fashion. As Librarians, we still find that we need to conduct our reference interview so as to ascertain whether PAO is the appropriate index tool for a student's topic. We are enlightening our users that PAO is not a panacea for all information requests. When appropriate, we refer the patron to the more specialized periodical indexes. We can also exchange the current compact disc with archival copies for retrospective searching. It is important to take note of the scope of years of coverage of the database, which can be found in the upper right hand corner of the screen. Students tend to forget that knowledge since the inception of creation is not all stored on a single CD-ROM disc. Upon using the print index the coverage in years is a little more apparent as the dates are printed on the outside cover of the volumes.

As Librarians, we have rigorously run PAO through its paces. In doing so, some spelling errors were discovered in the alphabetical dictionary. This shows that computers, like humans, are not infallible.

PAO is introduced in bibliographic instruction classes through the use of transparencies, which are backed up with a hands-on demonstration. It is not necessary for the student to be more familiar with the advanced intricacies of the program. Students can experience searching success with a very basic knowledge of a search strategy. As soon as a librarian assists the patron in negotiating his or her topic, one is on his way. The new technology appeals to the student who feels intimidated by print indexes. In some ways CD-ROM allows the user to be more interactive. The preference could be likened to the

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Coming Next Issue

The next issue will be out on April 15, and will include articles on teaching outside the classroom. If you would like to share your thoughts with your colleagues, please contact the editor as stated below.

Articles are usually 500 words, but may be longer or shorter. Please submit a typed, double spaced copy along with an electronic copy on disk (ASCII format) or via electronic mail. Articles are due no later than March 27, 1992.

Center Stage is published monthly in cooperation with the Teaching Resources Center.

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Center Stage
A Platform for the Discussion of Teaching/Learning Ideas
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While we all hope our classroom teaching enthralls our students, we cannot hope for it to be a complete educational experience. The world offers countless chances for learning: some sweet, some harsh. How do we at BCC take advantage of these opportunities? Read on for some good ideas and implementation. Note: We received enough articles for a sixteen page issue! That's a little too heavy to carry, so we'll run this as a two part series and finish in May. Thanks to all who contributed. -- ed.

Learning Outside the Classroom

Catherine A. Austin, Student, Mental Health

The classroom learning experience offers a vast menu of information and theory. The student learns to define terms, concepts and abstracts and what exactly is needed to pass the test and course. Our main goal for attending higher education is to learn but too often is overshadowed by the pressure to pass. I am quite sure that every instructor hears on a regular basis "Is this going to be on the test?", and becomes dismayed when the pupil disregards the information if it is not testable. In general, testing is used to measure the students understanding of

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Why I Teach

Elaine Corts, Humanities

After years of refusing to consider teaching as a possible alternative career, I was drawn to it again--partly from an economic necessity and partly by design. Literature and language, French and English in particular, are my passion. Any time in my life, when asked what I would most like to be, I would answer a writer. I still want to be a writer. Yet, I found that by secluding myself in study, I had nothing to write about.

I had tried teaching, years ago, just after graduating from college--with horrendous results. Recently, in a mid-life crisis, I wrestled with my own contrary thoughts and emotions concerning the rest of my life. I knew I was fated to a life of research, reading and writing, however, I might starve! Forced by the practical necessity to reconsider, I turned to teaching once again. When BCC asked me to teach French, I got my chance. Amazingly, this time, I started to like it, or at least I did not tremble and quake at the idea of going to my class every day. I gave my students a little French, and to my surprise, I received so much more in return! I can't qualify or define in tangible terms the knowledge and understanding I gained from them, nonetheless, I have learned as well.

> In teaching, as in writing, I want to provoke, stimulate, shock, and impress ...

I have come to realize that writing and teaching have one major aspect in common. Writing, for me, has always meant writing not just about myself, for myself. I keep a journal and, I have written many personal poems, yet I always have a vague, amorphous "reader" in my mind. Writing, like teaching, is a form of communication. When I write, I want to communicate my thoughts and experiences in the most cogent and the most strikingly beautiful way that I can. When I teach, I want to communicate a structured body of material in the most cogent and stimulating way that I can. Both the writer and the teacher want to communicate something to others which they earnestly believe others should know.

In teaching, as in writing, I want to provoke, stimulate, shock, and impress with the intention of making my thoughts and feelings or knowledge and experience part of the consciousness of others. What distinguishes teach-

(Continued on page 2)

Corts (from page 1)

ing from writing is the immediate reactions and feedback the teacher constantly receives. This is very different from writing and something I often find troubling, frustrating, and even painful, but always stimulating and inspiring.

I have to make time to write or I will lose my sense of self, yet, now I often have many thoughts and feelings I want to express--about my students, about myself, about language, about literature, and about teaching.

In a perpetual va-et-vient, teaching induces thought, which gives rise to writing, which, in turn, brings about new ways of teaching. One process feeds the other, working together in a strained, symbiotic tension. □

Why I Teach?

Leon Mosher, Humanities

The reason I teach does not come from a great desire for the "job security" that pertains to a part-time adjunct position, nor do I teach for the money (not that anyone does), nor do I savor the long hours of correcting and lesson-plan making that occupies a truly motivated teacher's every waking hour.

I teach simply because I **LOVE** teaching. I desire to share what I know, and the simple fact that I have the ability to do so is almost an obligation. My desire to teach stems from good experiences that I have had while teaching. My first experience teaching was as a volunteer with the Girl Scouts at the age of fifteen. At that time, I was teaching self-defense (Kung-fu) and the computer language BASIC. It was an indescribable feeling to explain and be understood. From then on, I was also fortunate enough to have been surrounded almost continuously with a very long list of supportive teachers who affected my life in such a positive way that they made me want to be a teacher. Corny as it may seem, I really believe that teaching is by far the most noble profession. Teachers have the unique opportunity to share their experiences, teach a subject, reach into someone's life, and enrich that person's outlook. Teachers can make low self-esteem disappear by getting to know the unique gift that hides inside each of their students. Discovering the gifts and abilities of each student is very difficult (impossible at times), but well worth the effort.

Not only do teachers get to enjoy the act of teaching, but they also get to see the immediate results of satisfaction and joy that come when a student understands and **learns**. At the beginning of each semester, a fog usually exists that clouds the understanding of a new subject in a student's mind, but little by little, with time, patience and experience, the fog moves away, and the student begins to

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Information Exchange

The Information Exchange welcomes your questions and answers. Please send them to The Teaching Resource Center.

Q. Does the campus have facilities to make high quality color slides?

A. John Scaturro (Institutional Advancement), Dean Reilly (Business Division), John Young (Photographer), Wanda Johnston (Director of Learning Resource Center) and Nathan Walz (Business) were consulted for this answer. Our AudioVisual department is not equipped to create presentation materials for faculty. John Young can take color slides upon special request. He usually shoots in black and white so you need to provide the 35mm color slide film and assume costs for developing. Requests for photographic services should be made through the office of Institutional Advancement. John notes that he has had success taking slides from high-definition computer screens (i.e. the SUN work stations), but finds standard PC's "un-photogenic". At this time the college does not have the equipment to make slides directly from a computer image. If you want to go off campus for this service, Slide Effects, at 700 Harry L. Drive, is recommended (but costly!).

In order to coordinate a shoot around his schedule and yours, John Young requires one month lead time and needs to know what you want photographed, where and when the people/object can be found.

As an aside, it should be noted that the college encourages departments to develop presentations for events like the Tech Fair and high school college fairs but feels it is inappropriate for departments to take recruiting presentations directly to high schools.

Q. How does a faculty member get funding to attend conferences and seminars out of town?

A. There are two main funding sources available to faculty: departmental funds and Foundation/Faculty Student Association (FSA) Professional Development Assistance Program Funds. Departments usually set aside a small portion of their budget for travel, which is distributed to faculty. Allocation practices vary, discuss this with your department chair. The major source of funding is the Foundation/FSA funds, designed to provide at least partial funding for approved professional development/research activities. Tenure-track faculty, support staff and administrators who are full time or adjunct/temporary who have completed 6 semesters of full time teaching are eligible for a maximum of $600 per year assistance. The

(Continued on page 7)

The Why of Biology Field Trips or Experiential Learning

Dave Sterling, Biology

A cold spring morning, temperature 32°F, a stiff little breeze, a few snow flurries, but the field trip bound students in Biology 112 are happy for a respite from four weeks of having their noses over formalin soaked fetal pigs. The van pulls away from the campus visible to those plunked in their lecture seats. "What can be garnered on such a day?"

First stop: a wetland marsh off route 12. "There!", the prof points, "A male red wing blackbird." The grey day silhouettes the bird. No color is visible. From the anonymous bowel of the van a question, "'Mr. Biology', why would anyone be interested in one small bird?" Privately, newly dubbed, "Mr. Biology" muses "I really have my work cut out for me with this group!", and then vocally, "This is one of your fellow planetary creatures. I'm trying to show you how these male redwing blackbirds have their territories set up around the perimeter of this pond. They perch, call, and display their colors hoping to attract a hefty harem of females to their particular territory. On a better day it would be more obvious, but with this snappy breeze, most birds are down in the cattail reeds".

"Mr. Biology" why would anyone be interested in one small bird?

The students are reminded of an earlier winter ecology trip when there were no redwings. On that day they hiked across the ice following mink track tracery in snow. Some had then exclaimed in amazement as they realized they had never before walked on natural ice.

Driving further along the causeway, using the van as a portable blind, today's group watched a newly returned phoebe aerobaticly flit from partly flooded twig to partly flooded twig. "Notice how the tail twitches as if its losing its balance and how it deftly lands on vertical twigs."

One student derisively relates an uncle's suggestion that his family get binoculars and a bird book, and check off birds seen around their home. "Why would anyone want to do that?" Mr. Biology's retort with the old saw "What a tragedy that youth is wasted on the young" is greeted with reflective silence.

The phoebe's flitting becomes hypnotic as it is often beautifully reflected. "Why is it so fat?" "It's feathers are fluffed out to insulate against the cold." Some conjectures are made about the bird's energy budget and the likelihood of finding enough insects on such a cold day to stay alive.

Continuing toward the opposite shore a male redwing, perched, flares out it's flaming orange-red, yellow edged epaulets. "Wow, neat bird" a few exclaim! Then comes the call which Mr. Biology clumsily emulates, "Beeeurrrp!" with imitative arm gestures. Chuckles all around.

Then comes the call which Mr. Biology clumsily emulates, "Beeeurrrp!" with imitative arm gestures.

Next stop, a beaver pond along Cafferty Road in Sanitaria Springs. The protected valley allows some comfort outside the van. Mr. Biology holds forth a comparison of the survival value of instinctive behavior versus intelligence. "Beavers don't go to school to learn how to build beaver dams. It's an inborn behavior pattern that is immediately adaptive. A naive beaver will build dams without ever having seen one. The "culture" of the beaver, dams, ponds, canals, and cutting areas fosters a richness of wildlife in their newly created environment." No beaver are seen but a pair of muskrats scramble up over the dam.

Back in the van the journey continues up the road. Suddenly a pair of bluebirds flit across the road. Mr. Biology cautiously positions the van for a better view. The pair are investigating a nest box in the back yard of a handsome Victorian farmhouse. The dusty blue color of the male is breathtaking. One newly enthusiastic student surveys the others about their next class commitment. Perceiving none, the students initiate a fantasy of spending the rest of the day on a prolonged field trip. Happy to have achieved this small victory, Mr. Biology suggests a group spaghetti supper at his house after viewing the spectacular evening mating display of the male woodcock.

Reality returns as another student regretfully reports the need to submit a paper at noon. Mr. Biology is relieved at not having had to terminate the fantasy.

The group finally arrives at the farm of Rudi and Inga Klenke. They are a retired couple, fugitives from post WWII Germany and subsequently Brooklyn, who produce all of their own vegetables, eggs, meat, and cheese on their seven acre farm. From the road the students are intrigued by white goats and geese as well as brown chickens and a holstein calf. Maples surrounding the pert farmhouse are taped with hoses draining maple sap. Garden terraces cut the hillside.

For several minutes the group studies some close at hand juncos and house finches at several bird feeders. Redwing blackbirds and evening grosbeaks hover nearby. The hillside sprouts numerous bluebird houses on steel posts. Eventually the Klenkes trudge up the hill to join

(Continued on page 6)

Will It Float?

Arthur Haas, Civil Engineering Technology

The Civil Engineering Technology Student Club has participated in concrete canoe racing since 1985. I have been the faculty advisor to the club since then and have found the design and construction of the canoe to be a great educational opportunity. Students become active participants in a valuable learning experience outside the classroom.

The races are hosted by a participating college and include as many as 15 entrants representing two and four year colleges from around the northeast. In addition to competing for fastest canoe in the various heats, awards are also given for best design, technical paper, oral presentation, and the canoe's appearance. It's a fun day for all involved but the students gain a great deal more from the experience than a field trip to the races. This is an opportunity for them to take an engineering project from concept to field performance test in less than a year.

Building a concrete canoe involves a lot of planning, designing, testing, and teamwork. Each year the students have the benefit of learning from last year's imperfections. Our first canoe, at 250 pounds, was far from the sleek, lightweight canoes of today. That 1985 model was slow, heavy, and rough. But it did float and it really performed in the final race of the day - the demolition derby. The canoe under construction for this year's race is expected to weigh in at about 125 pounds.

It is a constant challenge to find the right combination of strength and durability in our concrete mix, while keeping the weight at a minimum. The students apply much of what they learn from their Civil Engineering Technology courses. Much time is spent making trial batches of concrete and testing them for weight and compressive strength. This gives the students an opportunity to conduct a small scale research project. The basic ingredients in the mix (cement, aggregate, and water) are varied in each trial batch. Some batches also incorporate some of the newer high tech chemical mixtures designed to improve properties of concrete.

Once the best mix is chosen the students must devise a practical method of forming the shape of the canoe, applying the concrete, and providing appropriate curing conditions so that the concrete can achieve its maximum strength. This is a chance for the students to use their creativity combined with their technical knowledge.

Producing a boat that floats is not the only result of the students' efforts. Over the years, I have seen a group of people who did not know one another very well become a team. A common bond also grows between the students

(Continued on page 5)

The Importance Of Clinical Experience

Carole Barkley, Student, Physical Therapist Assistant Program

I have two clinical affiliations as a Physical Therapist Assistant and, this being my last, I ask myself why they are so important. Just when you think you know everything from class and labs and are sure of yourself, you get put to the test. An overwhelming feeling comes over you as you enter the last clinical facility and are faced with the realization that now you are responsible for what you have learned, and must apply that knowledge in the next six weeks.

On my first day, I am introduced to staff, get a tour of the hospital, visit the cafeteria and am given a book about the procedures of the Physical Therapy department. The patients start arriving around 8:30am and I am introduced as a "student" from Broome Community College. Am I supposed to be proud or should I quit and run? I smile or at least I try to, after all this is my last chance to prove I can make it. I am then assigned several patients for the day and told to request help if I need it. So far so good, or so I pray. I am familiar with the treatments: ultrasound and hotpacks. The rest of my first day is not as bad as I thought it would be. Basically the out-patients are total knee replacements who need an exercise program, some MVA's (motor vehicle accident) who need ultrasound to the neck and hot packs, and patients who injured their back at work need the same. Eight hours of this is tiring for the first day. Is that all there is?

By the second week I am given more responsibility and a feeling of inadequacy starts to overcome me. For example, I am given an 89 year old patient and told to put him in a whirlpool and apply sterile dressings to his legs. That's easy. I can do that. I remember everything the instructor taught us about sterile procedure and start the whirlpool with the cholorazene treatment, lay out the sterile utensils and gloves, gauze, ointments, and I am ready. In comes my patient in a wheelchair, being pushed by a relative. He pulls his trouser legs above his knees and, to my surprise and shock, I realize this patient's skin condition is much worse than I had imagined. I help him into the whirlpool and run to the restroom to breathe some fresh air and get my thoughts together. I must explain that this is not a typical procedure that a Physical Therapist Assistant practices in the classroom. It can only be experienced in the clinical setting.

Clinicals are important because they allow us to practice and gain confidence and experience in the field we have chosen under the direct supervision of a Physical Therapist. We work with a wide variety of patients who have joint pain, strokes, birth defects, heart attacks, amputations and the list goes on. Everyday is a learning experience which helps us become a skilled health care worker.

On-stage! Off-stage? On-stage!

Angelo Zuccolo, Theatre

Oliver Goldsmith, speaking of the great English actor, David Garrick, observed:

> On the stage he was natural, simple, affecting;
> 'Twas only that when he was off he was acting.
> RETALIATION... Oliver Goldsmith

Of all of the challenges encountered in working with theatre students outside the classroom/studio, one of the most fascinating is sharing with them the means of controlling the tremendous power of being able to produce potent emotions on demand. In "real life" most individuals have a measure of skill in manufacturing emotions in order to influence a pertinent situation or person. Actors, by reason of their training, have the capacity of raising this skill to a fine art!

The power to make audiences cry and laugh and shout and ache or rejoice in their deepest hearts is an enormous ethical and moral responsibility within the context of a stage performance. It is even more the case when tempted for use beyond the theatre doors.

Not long ago, a student-actor mentioned that his girlfriend would have nothing more to do with him after seeing him in a show. He had apparently played a love scene with such consummate skill that she doubted the sincerity of the private tenderness he manifested toward her, since it was couched in the same soft voice and giving glances which had made the aforementioned scene so moving. My caveat was one of the tenets of the actor's code, i.e. "Don't ever bring your lover to see you in a love scene!"

Fortunately, most of our student-actors recognize and accept the purpose of their performance training, with the realization that resulting off-stage problems are frequently the problems of the beholder. The idea, for example, of using acting as some form of psycho-therapy is quickly and summarily dismissed in early preparations for character analysis. In this sense, the student-actor who wishes to play a character in a play about divorce, because he or she is going through an actual divorce situation whether personally or within the family, will be alerted to the inherent dangers of such casting. Certainly, such an actor could bring insights into the role, but at significant cost to that actor's ability to submerge oneself into the subjectivity of the play. The professional actor knows how to distance his personal life from his role, however much they might approximate. The student-actor is learning how to do this.

> The professional actor knows how to distance his personal life from his role ...

During this process, I constantly underscore the necessity for the student-actor to preserve two truths: the truth of the emotions of his or her character and the truth of the emotions of his or her personal life outside the theatre. The difficulty occurs while working with the theatrical method called "substitution".

For example, if the actors playing Romeo and Juliet have a real antipathy toward each other off-stage, and cannot create the sensitive, caring quality of the characters on-stage, they might "substitute" the genuine emotions which they feel for another and project them toward the co-starring actor's character. Some actors, unable to find such an emotion within their inventory of emotions about others, might "substitute" their feelings toward their pet dog or delicious lasagna recipe or cozy feeling of staying-in-a-warm-bed-till-two-in-the-afternoon! In any case, we advise our student-actors to learn to use "substitution" in the same manner as an automobile ignition key, i.e. to use it to quickly start up the emotions of the character and then to let it go....to let the engine of the character's own emotions propel the play forward. To drive with the key still on is badly counter-productive.

After a time, our student-actors become amazed at the power which they can exert with and over emotions which, in many cases, they did not even know existed within themselves. At this point, they are able to stretch their wings and experience the joy of soaring in the rarefied atmosphere of the actor's constellar lights.

With time, training and experience comes the self assurance which gives the student-actor not only the on-stage confidence, but also inner strength, which, like Ravel's Bolero, builds inexorably to the awareness, performance and celebration of a myriad of one's talents. Student-actor-technician William McKercher succinctly summarizes the beyond-the-classroom experience in stating: "To turn a simple piece of wood into a form of scenic art, or a written line into feeling and compassion, is an experience which creates a warm glow inside of me....a sense of satisfaction and accomplishment...I love it!"

Haas (from page 4)

and the faculty. This closeness is one of the special benefits we as teachers gain from having the chance to work side by side with the students on projects like this.

This year race day is April 11 at Cornell University. Expectations are high and morale is even higher. Whatever happens and whoever wins is not really what matters. A valuable learning experience has taken place and friendships that have formed will last well past the students' years on campus.

Sterling (from page 3)

the group. Mr. Biology feels guilty that the elderly couple must climb to them but grateful that his old friends are happy to talk to these novice birders about bluebirds in their lives. Rudi distributes a few color pamphlets about bluebirds.

With ruddy cheeks the Klenkes cheerily joke with the students. They obviously love birds and love telling others about the plight of the bluebirds. The English Starling introduced by a Shakespeare enthusiast in the 1890's nearly exterminated the eastern bluebird by aggressively driving bluebirds out of nest holes. Now only the provision of nest boxes having a hole diameter no greater than 1 1/2 inches saves the species.

While Rudi details the dimensional requirements of bluebird houses, Inga questions Mr. Biology about some unusual local duck sightings. The Klenkes are happy at their task of creating converts to environmentalism e.g. sensitized, caring, aware young ecologists and lovers of bluebirds. Rudi jokes in German accented English about his plan to build no more bluebird houses this past winter, but alas, he built more than ever before, 127, bringing his long term total to over 600.

Rudi leads the group down to the pole barn for a hands on meeting with the goats. One brave young woman, following Inga's example and instruction gets to extract milk from a goats udder. Inga talks about the wonders of caring and living with goats and the nutritional uniqueness of their milk. All the young men embarrassingly decline an opportunity to milk a goat. "No way!"

The groups' return route takes them past the D & H Railway tunnel at Tunnel, N.Y. Mr. Biology offers that the students should hear John Young's narration of the famous fracas that occurred there in the 1800's when Gould and Fiske of the Erie R.R. attempted to steal the then Susquehanna and Albany R.R. Line back in the days of "Saratoga Trunk."

Several other beaver ponds are noted along the way as well as a very interesting contemporary underground house where the owners mow their roof. A discussion ensues about the energy saving and advantages of such a house against the higher costs of concrete construction to support an earthen roof. These modern cave dwellers dangle numerous bird feeders above the "cave" entrance.

Finally back at B.C.C. the next class waits patiently while the returning Biology 112 students stow their binoculars and pick up their bookbags. This provides a captive audience for the now effusive Biology 112 students' comments about serendipitous happy happenings of their just completed field trip. Mr. Biology enjoys a small moment of education elation.

Learning Outside the Classroom: Student Club Membership

Barbara Nilsen, Early Childhood Education

"Good Beginnings Never End" was the national slogan last year for the National Association for the Education of Young Children. It can be applied to college students who during their preparation years join and participate in a career-related organization. Our Early Childhood students are given the opportunity to learn outside the classroom through organizing and participating in their campus organization BECA (Broome Early Childhood Association), which is a student affiliate of the local, state and national affiliates of NAEYC. From my reading and contact with other campus groups I believe these good beginnings are not unique to our club.

> Belonging to a campus club can bring benefits academically, professionally, socially and personally.

Belonging to a campus club can bring benefits academically, professionally, socially and personally. It has been documented that participation in a campus club raises retention rates and academic averages of college students. It provides opportunities for students to expand their learning by attending workshops and meetings and at the same time broaden their perspectives of career options within the profession. For campus meetings, when students have reponsibility for selecting their own topics, they can augment classroom subjects through their own initiatives and base decisions on self-evaluation rather than the instructor's agendas. This empowers them to self-directed learning.

Belonging to a career-related organization acquaints them with the profession and provides contacts within the field to act as mentors and role models as well as future employment networks. Studies have indicated that students who belong to professional organizations during their college years tend to begin their first jobs at higher wages and stay longer, perhaps because of these contacts made and more realistic expectations of the work. This participation in the organization usually continues after graduation eliminating the isolation many feel upon entering their profession. It provides a support system, a network of information exchanges and opportunities for further development.

The peer relationships established on campus through the club can provide social interaction and a

(Continued on page 7)

Mosher (from page 2)

see the point clearer. Only with this type of dedication, will reachable students receive the skills they need. When these students reach this clarity stage, with it comes a feeling of pride and self-worth that is shared not only by the student, but by the teacher as well. I do not believe another profession exists that allows this type of personally uplifting experience several times a week.

Although not everyone can teach, and therefore not everyone should, explains one of the problems in the educational system today: people are teaching that should not be. Teaching is not a passive occupation, one has to "jump in with both feet" and dedicate a large portion of one's time and energy to invent imaginative ways to make the class interesting as well as instructional. I am also a firm believer in pushing the class to its full capacity for learning (Spanish or whatever subject you happen to be teaching them). If the class understands the material easily, then one has to expand that understanding as totally as possible, pushing the class to their full potential. The object of the class is to teach the student with the lowest ability as much as possible while still testing the smartest and most gifted students. This attitude and dedication is not hereditary, one has to really want to teach to put that much time and effort into a profession. I remember when I was in twelfth grade, I had a teacher named Mr. Newton for engineering and mathematical sciences. He used to give us incredibly hard exams that even the best students in the class could not pass. These types of exams tested the whole class, no matter at what level the student progressed, it pushed them. I believe that this approach to teaching is far better than the "bell curve" or the "I will get them with this question-revenge" method of exam writing. A semester is a short time period and we need to teach the students as much as possible with the highest retention rate. Good retention is only possible through the understanding of a subject, not through memorization.

> If the class understands the material easily, then one has to expand that understanding as totally as possible, pushing the class to their full potential.

> ... the shortage of qualified teachers or "lack of good teachers," obligates the ones who can teach to share their gift.

Because of the great cost to a teacher professionally, personally, and mentally, a shortage of people exists with this kind of "give all" attitude. However, the shortage of qualified teachers or "lack of good teachers," obligates the ones who can teach to share their gift. We have many problems within our society that stem from the fact that a good percentage of our youth are receiving a poor education. This, in part, motivates me to give every ounce of my energy to my students, often using some very unorthodox methods, but still reaching them as best I know how.

To finish, I would just like to say that teaching is more than a profession for me, it's a way of life. There are certain characteristics that accompany a "**teacher**". My good teachers "bent over backwards" to make me a better student and person. They made sure that I understood the subject well enough to teach it. They taught me that teaching or explaining a course to someone is the only sure way to tell whether you have grasped the idea yourself. I owe it to them and to my students to be the best teacher that I possibly can. If you do not enjoy the job, the students can tell and it affects their performance. I only hope that every teacher has as much fun as I do and shares in the same experiences of pride and joy that I receive from teaching. If they do not, I really feel sorry for them because they are missing the whole point.

Information Exchange (from page 2)

first step to qualify for Foundation/FSA funds is to complete a professional development growth plan, and file it with Francis Battisti, the Coordinator of Professional Development. Once the plan is on file, you may apply for funding for specific events. A peer review committee reviews applications for assistance and recommends funding. The Professional Development Plan forms and Application forms are available at the Teaching Resource Center and the offices of departmental chairs, directors, academic deans and the Coordinator of Professional Development.

Nilsen (from page 6)

sense of camaraderie helping the student to feel a part of campus life. Relationships formed with others with similar interests can form bonds that last a lifetime. The leadership skills developed in a campus club cannot be minimized either. Planning and leading meetings, contacting and introducing speakers, fund raising, publicity, working cooperatively with others are skills that will be valuable in the workplace. Building organizational skills, working within systems, exercising responsibility, tact and volunteerism are valuable characteristics gained by student leaders that are difficult to teach in a classroom.

The benefits to the student, the campus and society from professional organization membership are truly "good beginnings that never end."

Austin (from page 1)

the material. What may be difficult to examine is the insight gained by the learner.

Many professors, wanting to enrich their students' learning experiences, have used group projects as a part of their course. Much of the preparation occurs outside of the classroom. Research is gathered by the individuals and is brought back to the group. Data must be collected, organized and interpreted. A learning process goes on within the group structure that is semi-independent of the classroom.

Often what may occur is the AH HA! phenomenon. The learner begins to digest the material and use it for more than testing. Applications to experiences, previous courses and outside readings are woven into the information. The process of owning the material is deepened. The student has not only learned the academic principals but begins to see the application.

Another approach to learning outside the classroom is the internship. Such an experience provides opportunity for application of theory and concepts learned in the closed environment of the classroom. It is in vivo experience and not the neat little term paper where everything fits together perfectly.

As a second year student in the Mental Health curriculum, my courses have had a heavy concentration in Psychology. The tendency of wanting to analyze and diagnose is at times very strong. A casual observation made of Mental Health students is that they appear to have their own language - "psychologese". The academic concentration is on terms and concepts. While that is useful, it is distinct from the much needed practical side of the science. The skills that are a part of the helping profession go beyond being a good diagnostician. These interpersonal skills can be examined and explained in the textbook (as in Brammer's The Helping Relationship and Corey's Issues and Ethics in Helping Professions) but they are not truly learned until one applies and makes it a part of their being.

Starting an internship at the Department of Social Services was a shock to my system. The statistics that are so easily thrown around now had faces. My ability to diagnose and define terms was not all that helpful. What I needed to learn (and continue to learn) was the "people skills". Theory had to move into the realm of reality.

For an example, let me share my first attempt at interviewing a client applying for emergency food stamps. I thought I was being a proper student prepared with my list of questions. There was more concern over the mechanics of the interview than the actual need of the client. Even though I did not do well in the interview, it proved to be one of the most valuable lessons of the semester. The focus is not on me, but how the client can be helped. This help was not only to make sure that the services needed were provided, but also to ensure that the client was treated as an individual. The person before me was not a carefully laid out case study that was to be analyzed and a list of treatments given. This was a person in real need. I quickly realized the coldness of my approach. After the interview, I had to examine not only the mechanics but the motives. Was I seeing the interview from the client's perspective. How would I feel if I was being interviewed? What would be some things that would make me feel more at ease in this situation? In asking these kinds of questions, the AH HA! phenomenon came into play. I could recall class instruction and discussions concerning the subject. In combining the academic with the actual, insight began to take place. Although the methods of interviewing were taught, they were not learned until used.

The story of the novice musician asking the virtuoso "How do you get to Carnegie Hall?" with the later replying "Practice, practice, practice." comes to mind on a regular basis. In the setting of the internship I am allowed to make mistakes and learn from them without severely negatively impacting clients. The mentors will offer advice and direction to improve and understand. The "new" is then incorporated into the "practice". While I am a long way off, I can see progress in the right direction. This kind of learning is limited within the classroom setting and I am grateful for this field experience.

The impression that the internship has made on me brings to mind what Sophocles said "Knowledge must come through action...". I would substitute wisdom for knowledge in his statement. Knowledge is the foundation that wisdom builds on. Wisdom is developed through time and experience and I feel that the internship contributes toward this development. □

Coming Next Issue

The last issue for this semester will be a continuation of the topic of education outside the classroom. Writers include: Dave Walsh, Carolyn Pierce, and Deborah Spanfelner.

Center Stage is published monthly in cooperation with the Teaching Resources Center.

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Center Stage

A Platform for the Discussion of Teaching/Learning Ideas
Broome Community College -- Binghamton, New York 13902

Volume 2 Number 9 *May 15, 1992*

This is the last issue of Center Stage for the year. Inside you will find the continuation of last month's topic "Education outside the classroom", articles detailing how Mathematics is used to the benefit and enrichment of society, and the annual summer reading list.

The librarians have put together a potpourri of interesting titles, along with a synopsis of what to expect underneath. They did a nice job under sudden time constraints.

As you read this issue, please take time to reflect on the fact that there have been seventeen issues of Center Stage published since the inaugural issue in October 1990. There have been approximately one hundred authors, including faculty, students and administrators, almost entirely from this campus. In each case these people took time to tell us how they felt, and why what they were doing was important.

As we all know by conversations with friends, acquaintances, and people around town, BCC is something special. I'll take up a little space to say that its the people here that make it special. You have been wonderful to work with as readers, writers and critics. (Okay, I'm lying

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The Everglades' Classroom

Dave Walsh, Biology

I'm certain many of you, particularly those attempting to reserve a college van, know the Biology Department is big on out of classroom educational experiences. Our most ambitious credit offering is **BIO 200 Ecology: The Everglades** developed by Rick Firenze and myself.

If you are one of the sixteen or seventeen students accepted as a participant in the course, shortly after Christmas you will find yourself packing all your personal needs into one backpack ...

If you are one of the sixteen or seventeen students accepted as a participant in the course, shortly after Christmas you will find yourself packing all your personal needs into one backpack for a ten day camping experience in the Everglades National Park. A definite exercise for critical thinking. Next you hop in a college vehicle for a two day drive which ultimately concludes with a mid-night rendezvous with what will become the most feared beast in the Everglades - the mosquito. Try as you may you will eventually make a donation to the cause being actively incorporated into the Everglades' food chain. You are now an official trophic level in the transfer of energy through an ecosystem.

Perhaps the above scenario provides a brief glimpse of the value of moving the classroom beyond those sacred four walls. It presents that good ol' teachable moment, a little nugget of time when a student has been personally affected and really wants to know. The challenge for the teacher is to pick up on those moments and make the most of them.

By and large, biology happens outside so we simply go where the action is. For a microcosm of biological concepts, there is no place in the world like the Everglades offering more teachable moments than you have "House" members writing latex checks.

Your ten days will be filled with field trips - morning (some as early as 6:00 AM), afternoon and night (some concluding well after midnight), hikes through pine for-

(Continued on page 2)

Walsh (from page 1)

ests, saw grass prairies, desert like coastal prairies, wading in Florida Bay, slogging around in a cypress dome, canoeing through a mangrove swamp and even bicycling along a main water flow. There is only one strategy for success in the Everglades. You must take your time, observe and think, for the Everglades is a subtle place richly rewarding patience and curiosity. The more you ask yourself why the more the magic of the biological world will unfold to you.

Facts and phrases in the traditional classroom become an unforgettable experience when you live them. Much of the biological world is adapted for night time activity (nocturnal). We, on the other hand, are day time critters (diurnal). It takes only a few seconds to state these concepts in a standard classroom setting and they are diligently filed away to be forgotten for the exam. However, when you are sitting alone in a dense stand of vegetation called a hammock listening to the night sounds, nocturnal takes on a new meaning. When the leaves rustle and a few twigs break you quickly realize just how unprepared you are to cope with the night while gaining new respect for nocturnal adaptations. (Note: students are safe and most survive.)

In as much as BIO 200 is a biology course it is also a psychology course - an exercise in group dynamics. The success of the psychological dimension dictates the success of the biological aspect. In short, if the student is a comfortable part of the group he/she has the mental freedom to learn.

I think it is critical in a course of this nature to be so well organized and structured that you are actually flexible.

Fourteen days of close quarter living can test anyone's mettle resulting in the real person emerging somewhere along the line. Rick and I try to pick students with the right blend of enthusiasm and temperament and plant the unity theme early in our pre-trip sessions. As we tell the students, our goal is not to live in the Everglades for ten days but to live with the Everglades for ten days. You call that coexisting, so if we are to coexist with the "Glades", we must first learn to coexist with each other. What any one student can get from the course is directly proportional to the unity of the group. One of the most rewarding aspects of the course is to see a group of strangers leave for Florida and a group of close friends return.

I think it is critical in a course of this nature to be so well organized and structured that you are actually flexible. You must realize from the onset things will never go exactly as planned so you are continually altering your plans on the fly and sliding things in as they fit. It may

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Information Exchange

The Information Exchange welcomes your questions and answers. Please send them to: Center Stage c/o the Teaching Resource Center.

Q What will happened to Center Stage now that Paul O'Heron is stepping down as Editor?

A The Teaching Resource Center Advisory Board shares your concern about this and have been seeking volunteers to take over the editing tasks. Requests have appeared in FOCUS, first for an Editor-in-Chief and more recently for monthly editors. To date we have seven volunteers: E. Beamish, A. Sova, G. Higginbottom, L. Mapes, M. Akins, R. Williams & C. Ligeikis-Clayton. Faculty are still needed to edit the April and May issues.

What is involved in editing an issue of Center Stage? The job responsibilities for editor include selecting a theme for the issue, soliciting articles, editing them and submitting them to the Teaching Resource Center for publication. The Editor's work is done the month before the issue will be published. If you'd like to edit, but can't come up with a theme the TRC advisory board can suggest one. If you'd like editing but not recruiting writers (or vice versa) perhaps you would consider sharing the job as co-editor. Completed articles are sent (electronic copies via E-mail, handwritten, typed or diskette copies dropped off or mailed) to the TRC where they are processed and prepared for publishing. The author is asked to review the final copy and the completed issue is sent to the Copy Center for duplication.

If you're one of the people that eagerly awaits the arrival of this publication ... we need your help.

If you're one of the people that eagerly awaits the arrival of this publication... we need your help. We would like to continue to bring you the quality service that you have so enjoyed. If Center Stage is important to you, then go to your telephone and dial 5354. No Visa card or checkbook is required. Make a pledge of support today! (Apologies to WSKG.)

Q Are copies of the Faculty Handbook available?

A The Teaching Resource Center is currently in the process of revising the book, which will be available for new faculty orientation in August. If you didn't have a copy of the handbook and would like one contact the Center, we would be happy to send you one when they are finished.

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Nursing Education Off-Campus

Carolyn Pierce, Nursing

A significant and vital portion of educating the nursing student occurs outside of the traditional classroom and nursing laboratory in off-campus clinical assignments. This clinical component is an integral part of educating nurses who are prepared to provide quality nursing care in a variety of settings following graduation from Broome Community College. The off-campus clinical experience provides the nursing student with the opportunity to apply theory gained in the classroom in real situations. Students also practice psychomotor skills presented in the nursing laboratory in a typical environment under supervision of a clinical instructor.

A major tenet of the philosophy of BCC's nursing education is that nursing education should progress from simpler to more complex principles.

A major tenet of the philosophy of BCC's nursing education is that nursing education should progress from simpler to more complex principles. Therefore, off-campus clinical assignments extend across a wide variety of health care facilities in tandem to content presented in the classroom. Early in the program, nursing students have opportunities to practice simple skills such as vital signs, hygiene and basic health assessments in local nursing homes and hospitals. As the program progresses, nursing students are assigned to increasingly more complex situations in the hospitals, as well as Binghamton Psychiatric Center and Broome Developmental Center. Some students opt to spend a day with a local hospice worker or a public health nurse. At the conclusion of the educational program, students will have hands-on practice in a variety of settings including pediatrics, obstetrics, psychiatry, critical care, surgery, geriatrics, and complex medical-surgical settings.

BCC's clinical instructors are registered nurses with advanced educational preparation and a working knowledge of clinical nursing role. The instructor serves to guide and facilitate the students by assigning appropriate learning experiences. Development of critical thinking skills is a major consideration of the instructor in the clinical setting, and conferences before and after clinical serve to foster group and individual analyses of the clinical experiences.

The value of off-campus instruction lies in many areas as previously mentioned and is especially valuable as students apply newly acquired scientific principles to actual client care situations. Instructors have the opportunity to check students' understanding of principles taught in the classroom, thus validating their effort or indicating a need for changes. Students find this application process valuable to reinforce principles and as a foundation for further more complex principles. For example, students learn from an early point the importance of meticulous skin care to prevent complications. During clinical experiences, they have the opportunity to see first-hand the outcome of various efforts to prevent skin breakdown and the successes and failures in a variety of settings with many different types of clients.

In addition to the scientific principles, students develop psychomotor skills with hands-on practice in many complex situations. Instructors and students alike can evaluate students' progress toward mastery of complex skills in the increasingly high-tech health care environment. Students often fear performing potentially painful procedures such as insertions of catheters or giving injections. Practicing on a dummy in the nursing laboratory does not replace giving an injection to your first "real" client!

Students can try new and creative ways to solve problems ...

Nursing students apply principles of the nursing process to real clients in real situations. Students develop a comprehensive Nursing Care Plan, deliver the care they have planned, and then evaluate the effectiveness of their plan and delivery. Students can try new and creative ways to solve problems and use their analysis of outcomes to provide better care to subsequent clients with similar problems.

Another valuable part of the clinical experience is observation of expert nurses and other health care providers in actual client care situations. Students find this is a powerful adjunct to the scientific principles when learning how to react to all types of health care situations. Students also see first-hand how experienced nurses respond to various intangibles that occur frequently but cannot be anticipated. Along with this is the opportunity for students to observe what it is that nurses really do in a variety of health care settings, and they can make informed decisions about the area where they chose to work after graduation. Some also may find that nursing is not what they wish to do after such observations and make appropriate career changes.

Nursing students learn to communicate with all types of persons in a wide variety of real-life situations. Students are actively involved in health care delivery in varied and frequently pressurized situations and gain invaluable understanding of therapeutic communication techniques with each involved person, whether they are clients, family members, physicians, or other health care providers.

(Continued on page 7)

The Library, A Classroom With Limitless Opportunities for Lifelong Learning

Deborah L. Spanfelner, Library

I see the Library as an extension of the classroom where learning becomes even more interactive. This provides the student with the opportunity to become an active partner in the education process. The Library has developed an extensive instruction program which has tripled from 53 classes in 1987-88 to an average of 161 classes per academic year.

The librarians here at BCC have adopted various methods and media for imparting library skills to its patrons. There are general library tours and bibliographic instruction (B.I.) sessions which integrate the goals and objectives of the discipline. The most successful B.I. classes are those in which the librarian and instructor work closely regarding curriculum design and assignment goals. The assignment is closely aligned with the material taught in class. It serves as reinforcement for the library lecture and tour.

Instructors are also given the choice of presenting a generic videotaped orientation to their students. The videotape can be used when it becomes difficult to schedule a library class due to conflicting schedules. The videotape is very well done, but is not meant to be a substitution for the "in vivo" library class.

Different media and methodologies may be employed in a [bibliographic instruction] session in order to accommodate the varied cognitive learning styles.

Different media and methodologies may be employed in a B.I. session in order to accommodate the varied cognitive learning styles. For example, the CD-ROM Program, Periodical Abstracts Ondisc (PAO), is first introduced with a series of transparencies which present Boolean searching, set logic, and sample screens. The CD-ROM workstations provide a unique outlet for information. The students tend to spend more time thinking through their search strategies. Once the citation appears on the screen, they then proceed to utilize their critical thinking skills to assess what they have found. According to guidelines developed by the Reference and Adult Services Division of ALA in 1985, B.I. should have as its four major objectives:

To know which online systems are available and what each system represents; to analyze each information need and to develop a search strategy appropriate to the need and the system; to operate the system in an efficient manner; and to understand how to interpret the search results and how to obtain the needed information. Dennis Hamilton. "Library Users and Online Systems: Suggested Objectives for Library Instruction," RQ 25 (Winter 1985): 195-96.

In addition to formal group tours and B.I., instruction is made available through supplemental resources enhancing curricular offerings as well as point-of-use and individualized reference assistance. The microfilm and fiche reader/printers present information in the various formats which students are encountering in such careers as Office Technology and the Medical Technologies. Students also have access to information in videotape, audio cassette, slide, and filmstrip formats and the corresponding equipment on which they run. They provide for one-on-one learning which enables the viewer or listener to proceed at a speed which is comfortable for his level. It's an opportunity for the students to take responsibility for their education. Think, for example, how much more stimulating it is to look at a paramecium on a slide projector screen in addition to reading about it in a textbook!

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The handouts rack in the library contains "point-of-use" guides as well as bibliographies and pathfinders. The latter refer the patron to the various information resources for a particular topic, along with appropriate subject headings to use for searching. The "point-of-use" or "how-to-use" guides have been placed by each print index to aid the more timid library patron in using these indexes.

The reference interview conducted by the librarian teaches the student how to define his topic and the execution of more effective search strategies. Students get to work with the information professional in adopting skills which empower the students to be lifelong learners and independent users of information.

The role of the librarian as instructor is more important than it has ever been.

Both individual reference service as well as B.I. classes have been affected by the information age and technology. For example, CD-ROM programs for end user searching and Online Public Access Catalogs present a challenge for librarians teaching B.I. classes. The content of the class must now include the new technology as well as print sources. Since the average B.I. class lasts 50 minutes, it requires that the librarian present the information as concisely and clearly as possible. The role of the

(Continued on page 7)

Summer Leisure Reading List, 1992

Jane Rawoof, Ann Repasky, Debbie Spanfelner, Suzanne Sullivan, Greta Wingate, Library

Once again we have compiled a list of books for your summer reading pleasure. The books which our Library owns, are followed by a call number. ENJOY!

Brown, H. Jackson Jr. Life's Little Instruction Book. Tennessee: Rutledge Hill Press, 1991.
This book began as a gift from the author to his son as he was beginning his first year in college. It provides 511 tips on how to live a happy and rewarding life. It has been quite popular as a gift item. (dls)

Carreras, Jose. Singing From the Soul. 1991. ML420.C2566A3.
This is the autobiography of the famous operatic tenor. The first half is especially interesting and inspiring. He explains how he deals with his leukemia and undergoes a bone marrow transplant in the U.S. Now he is completely recovered and is back on the operatic stage. Through his experiences, he has learned the true priorities of life--one's dependence on God and the importance of one's family. (jr)

Chacour, Elias. We Belong to the Land. 1990. D113.7.C495.
A Melkite (Eastern Rite) priest arrives in a small Israeli village to take up his duties at a new parish. Abuna (Father) Elias works a miracle: old animosities are overcome; the three major Arab subgroups work together for the good of all. Under Abuna Elias' leadership, the villagers' efforts result in the Prophet Elias High School for the village. (jr)

Cipriani, Arrigo. The Harry's Bar Cookbook. New York: Bantam Books, 1991. TX723.C562.
Mr. Cipriani shares recipes as well as the history and background of the world-famous bar and restaurant located in Venice, near Piazza, San Marco. The recipes are easy to follow. This critic especially favors the homemade Orzetto--a barley soup. (dls)

Theoretical and practical information for new instructors; helpful review for any college teacher.

Flood, Barbara J. and Joy K. Moll. The Professor Business: A Teaching Primer for Faculty. Medford, New Jersey: Learned Information, 1990. FRR LB2331.F56.
Theoretical and practical information for new instructors; helpful review for any college teacher. Includes classroom management and faculty responsibilities. For all college faculty (community college as well as university). (gw)

Foxworth, Jo. Boss Lady. New York: Crowell, 1978. HF5500.3.U54F68.
The author's description of her position in an advertising agency illustrates a woman's effort to succeed in the field of her choice. She vividly portrays her struggle to rise above the office politics that were used to manipulate and coerce her to perform certain tasks because she was a woman. Foxworth learned the business so well that today she has her own advertising agency. (ar)

Frontero, Vincent. What's Free and Cheap in New York. New York: Penguin Books. REF F128.18.F76 1991.
This book is a "must" to take along with you if you're going to the Big Apple. (dls)

I found this book in the stacks while weeding the collection this spring.

Gann, Ernest K. Fiddler's Green. New York: Sloane, 1950. PS3513.A56 F6.
I found this book in the stacks while weeding the collection this spring. Since this is the title of a folk tune, I had to read the book. The title refers to the imaginary Elysian field of "sailors and vagabond craftsmen...where [ther's] many a lass and glass,...and never a stormy sea." The book is about professional fishing where the thought of albacore "lured him far to the sea to the blue-green water. Then the madness that could draw him to such an occupation is understandable." (ss)

Gershon, David and Gail Straub. Empowerment: The Art of Creating Life as You Want It. New York: Dell Publishing, 1989.
Money, miracles, creative visualization, spiritual paths, falling in love. Lots of exercises and space to write. You may end up writing a book about your journey! (Uncataloged) (ss)

Hoffman, Alice. Seventh Heaven. New York: Putnam's Sons, 1990.
This is a tale of life in a suburban community in the 1950s in which you will feel immersed and at home. Light fiction. (ss)

Krause, Corinne Azen. Grandmothers, Mothers, and Daughters. Boston: Twayne Publishers, 1991. HQ1410.K73.
Three generations of women of the Jewish, Slavic, and Italian nationalities describe their lives showing the differences in society and technology during each of their lifetimes. The grandmothers who emigrated from their native lands recall their bittersweet memories of adjustment problems. The mothers portray life during the Great Depression which was followed by World War II

(Continued on page 6)

Summer Reading (from page 5)

and the daughters whose lives are much different today from their mothers and grandmothers give their views. (ar)

Magliozzi, Tom and Ray Magliozzi. Car Talk. 1991.
TL152.M214.

"Click" and "Clack" (regularly heard in this area on WSKG-FM Sundays at 1 p.m.) present an amusing and witty guide to the anatomy of the car for the layperson. Interspersed with the text are actual on-air questions from callers and the brothers' knowledgeable and humorous responses. (jr)

Mayle, Peter. A Year in Provence. New York:
Vintage Books, 1989.

The reader is taken through one year in the life of Peter Mayle and his spouse. This couple moved from England to rent a 200 year-old stone farmhouse in Provence, France. Mr. Mayle vividly describes the frosty mistral, French cuisine, and customs. It makes the reader feel as if he is really there. It won the British Book Awards' "Best Travel Book of the Year" in 1989. This author also wrote, Toujours Provence. (dls)

Morse, Melvin and Paul Perry. Closer to the Light.
New York: Villard Books, 1990. BF.1045.N4M67.

Paul Perry and Melvin Morse, who is a doctor, gives the results of his interviews with children who had near-death-experiences. He finds that the young children who do not possess an adult vocabulary are capable of expressing their near-death-experiences very well. Ten years later, he returns to interview these same children to compare with his previous findings. (ar)

Osterud, Nancy Grey. Bonds of Community: The Lives of Farm Women in Nineteenth Century New York.
Ithaca: Cornell University Press, 1991.
HQ1438.N57 088.

The research is based on the diaries of people living in the Nanticoke Valley. Even men kept diaries--"Lucy Ann has been up to Bert's all afternoon and is gone again this evening to Stay all night leaves us all alone Seems lonesome Wish this world was not so full of Cares and trials as it is...Feb. 3, 1881." (ss)

Patent, Arnold M. You Can Have it All. Piermont,
New York: Celebration Publishing, 1987.

The universe is perfect. You will believe this after reading this book. There is no right and wrong. Releasing judgement of a person or situation releases the discomfort as well. Perceiving the situation in a different way, changes the experience. This is a quick-read-feel-good, with minor shocks that change your perceptions to--JOY. Enjoy! (ss)

Ross, Anne and Don Robins. The Life and Death of a Druid Prince: The Story of Lindow Man, an Archeological Sensation. New York: Summit, 1989.
DA 690.L6R6.

Recounts the 1984 investigation into the history of a body found in an English peat bog. Lindow Man was a Druid priest who was ritually murdered. Good archeological and historical background. (gw)

Recounts the 1984 investigation into the history of a body found in an English peat bog.

Sanford, Linda and Mary Ellen Donovan. Women and Self-esteem. New York: Penguin Books, 1984.
HQ1206.S24.

An inspiring self-help book that offers hands-on exercises which the author refers to as "Blueprints for Change." Ms. Sanford presented a workshop on the topic in Binghamton, New York recently. (dls)

Shevardnadze, Eduard. The Future Belongs to Freedom. New York: The Free Press, 1991.
DK290.S54A3.

The former foreign minister portrays his early career in Soviet Union politics. He also describes his role in "perestroika" which helped the Soviet Union in its foreign relations with other countries. His close friendship with Gorbachev reveals his participation in the recent downfall of Communism in the Eastern European countries. Shevardnadze was a political figure who wanted to bring about change in the Soviet Union and thereby give the people a better life. (ar)

Simmons, Thomas. Escape from Archangel. 1990.
D810.T8S48

During World War II, an American merchant seaman on the Murmansk run of convoy ships (northern Soviet Union), after missing curfew, is detained and imprisoned by Soviet authorities. He escapes and makes his way across Finland to freedom. (jr)

A classic.

Tuchman, Barbara. The Zimmerman Telegram. 1966.
D511.T77

A classic. A secret telegram to a high German official is intercepted and decoded by the British. It was a major factor in America's entering World War I on the side of the Allies from her position of neutrality and possible negotiator, when she learned of the start of U-boat warfare and of the Kaiser's promise to restore the Southwest and Texas to Mexico. (jr)

Walsh (from page 2)

sound easy but you really must have your act together to pull it off.

Another key component in this course is a compatible colleague. Rick Firenze and I have a certain chemistry fueled by humor which permeates anything we do together. It is a vital ingredient which puts students at ease, seems to create a sense of trust, and most certainly defuses the unexpected. The tighter the situation gets the more we resort to humor and on occasion - well, the Marx Brothers would be proud.

Finally, when students catch fire and are ready to learn on their own, get the heck out of the way and let them go. When I see our students in action in the "Glades," it is always a refreshing reminder of just how good many of them are. They can compete with anyone at any level and more importantly they are just great people. It makes you believe the future is in good hands.

Spanfelner (from page 4)

librarian as instructor is more important than it has ever been. The skills that students gradually obtain are reinforced through the individualized instruction received from the reference librarians.

The BCC Library will be experimenting with two trial CD-ROM Programs for reference service. Readers' Guide Abstracts produced by the H.W. Wilson Company, presents citations which are accompanied by summaries of the articles. InfoTrac produces the Academic Index which indexes scholarly and popular journal articles as well as the last few months of the New York Times. Here at BCC, we look forward to the changes which the new technology brings and we are rising to meet the challenge!

Editor's Commentary (from page 1)

about the critics part. But thanks for keeping me posted on the typos.) The enthusiasm I have seen from writers has refreshed me on many occasions, while their novel perspectives have allowed me to expand my horizons.

I would also like to thank John Callahan and the rest of the folks in the Copy Center for their patience each month as I strolled in with "ANOTHER 10 PAGES!?!??!" of this publication. They always took a great deal of care that each issue looked professional and was done promptly.

In a short while it will be time for summer and a chance to recharge the batteries for the new faces in the fall. Enjoy your students and enjoy the summer! -- ed.

Pierce (from page 3)

Also BCC nursing students develop higher level cognitive functions such as organization, independence, and leadership skills in the clinical setting. Students are expected to take on increasingly more difficult and complex roles as they progress throughout the program. Because the majority of BCC nursing students are non-traditional students with a wide variety of life experiences, many have significant aptitudes in these areas and find this easier than expected.

> ... the majority of BCC nursing students are non-traditional students with a wide variety of life experiences ...

Education of the nursing student is augmented during the off-campus clinical experiences in innumerable and immeasurable ways. We can be very proud of the quality of the BCC program and the abilities of our graduates to function as they join the nursing profession upon graduation.

Info Exchange (from page 2)

Q **Are Summer Mini-Grants available this year?**

A Yes. The College will provide a limited number of stipends to faculty this year, however, the focus and procedure is somewhat different than previous years:

First, because of budget uncertainty, the process is starting late.

Second, this years projects will focus on improving teaching and learning and developing curricula and curricula material. Acceptable projects include Multi-Media Applications, Utilizing Technological Resources, Classroom Research, Classroom Assessment, Collaborative Learning, Alternative Teaching Styles, General Education Goals, Outcomes Assessment and Campus Theme Related Activities (1992-93 "The Dynamics of Discovery").

Third, the composition of the screening committee has changed. Two faculty members from the Teaching Resource Center Advisory Board and two members of the Professional Development Committee will join the VPAA and four division deans on the Screening Committee.

Cover sheets for proposals are available from your Academic Dean's Office, the Teaching Resource Center, The Professional Development Office (B-002) and the VPAA's office. Proposals are due as soon as possible and no later than May 26, 1992.

Mathematics and the Environment

Maruja Lander, Mathematics

What does Mathematics have to do with the BCC theme for this year: Science and Technology for a Sustainable Society? This was the first question I asked myself several months ago. I decided to asked some of my colleagues in the Math Department; all of them had wonderful ideas.

Greg Sliwa showed me a **statistical method** called "captured and recaptured" to estimate the population size of endangered species, for example, the number of blue whales in the oceans.

Dan Dodway explained very enthusiastically how **parabolic arcs** are models of thrown objects and water fountains and **elliptical arcs** are patterns of orbits of planets and comets. We can model honeycombs with **hexagons**, while other mathematical shapes describe crystalline structures. There are also mathematical models to describe the spiral of the chambered nautilus, the spider's web, the bands on pine cones, the patterns of buds on trees, the number of rows on an ear of corn and the shapes of galaxies.

There are ... mathematical models to describe the spiral of the chambered nautilus, the spider's web, the bands on pine cones, the patterns of buds on trees, the number of rows on an ear of corn and the shapes of galaxies.

Paul O'Heron told me that we could easily incorporate environmental and social problems into most of our basic mathematics courses. He used **game theory** to discuss with his class the inevitability of the Persian Gulf War.

Many applications of mathematics to environmental questions do not require a high level understanding of the field. In fact, new text books and many mathematics professors, including those at Broome, are now starting to use models of natural phenomena and environmental issues to illustrate basic mathematical concepts.

Mathematicians' interest and concern for the environment was demonstrated this past January at a national conference in Baltimore devoted to "Mathematics and the Environment". It was also the theme for the national observance of Mathematics Awareness Week, which began April 26th, the Monday after Earth Day.

Mathematicians are currently helping in environmental research by building models of the natural world. They use graphs, equations and their own abstract thinking to develop mathematical descriptions that are used to understand, inform and resolve environmental problems.

For example:

1) **Differential equations** describe the bouncing movement of a weight that is suspended by a mattress spring, the oscillations of an electrical current in a radio and the movement of a solitary water wave in rivers, lakes, and oceans.

A **mathematical model** for the northern spotted owl population in the Pacific Northwest has already been created.

2) A **mathematical model** for the northern spotted owl population in the Pacific Northwest has already been created.

3) **Mathematical models** are also one of the tools available to understand what doses of pollution different parts of the human lungs will receive when breathing different concentrations of pollutants.

4) **Interval graphs** are used to time traffic lights and reduce the pollution from automobiles by reducing the idling of automobile engines.

5) Mathematics and **statistics** are used to deal with other environmental issues like predicting the growth of herds of deer in urban areas, depletion of the ozone layer from the use of chlorofluorocarbons as propellants, the effect of emission from factories and vehicles on the acidity of rain, etc.

I knew that Math was essential to any technical area of study, including Sciences, Engineering, Business, Economics, Sociology etc. Now I have found out that it is essential for the proper development of the emerging and urgent area of Environmental Studies.

Coming Next Issue

The next issue will be September 1992. Anyone interested in writing an article should discuss their idea with Alice McNeely, ext 5354, in the Teaching Resources Center.

Center Stage is published monthly in cooperation with the Teaching Resources Center.

Send correspondence and contributions to the editor:

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